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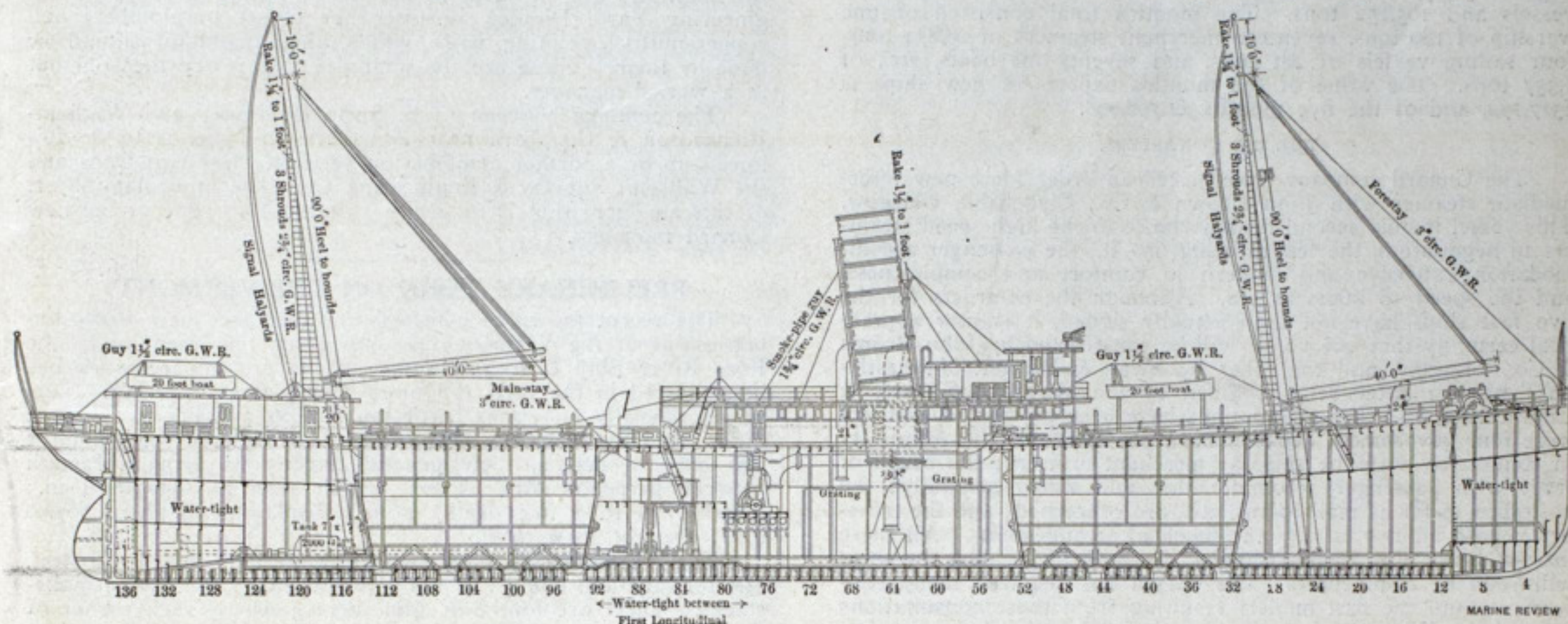
TWIN-SCREW STEEL SUCTION DREDGE.

Sealed proposals for constructing two large twin-screw suction dredges for use in government work will be opened by Capt. J. C. Sanford, government engineer at Philadelphia, on June 30. The dredges will be 274 ft. between perpendiculars, 288 ft. over all, 47½ ft. molded beam and 25 ft. molded depth. The hull, as well as the bins, will be of steel. The dredges are to be constructed so as to conform in every respect to the rules and regulations of the American Bureau of Shipping. All plating will be worked "in and out" in longitudinal strakes and the hull will be subdivided by four bulkheads. The dredges will be fitted with two masts of Oregon pine 100 ft. long, the main mast to have three

CAPT. CHARLES W. RAE TO SUCCEED MELVILLE.

Capt. Charles W. Rae has been appointed to succeed Rear Admiral George Wallace Melville as engineer-in-chief of the navy. Capt. Rae was a member of the first class of cadet engineers to be graduated from the naval academy. He was in the naval engineer corps until March 3, 1899, when by act of congress all engineer officers were transferred to the line. He has been in the naval service since 1866. In the war with Spain he was chief engineer of the battleship Iowa and was advanced in numbers for his services in the naval battle off Santiago.

Pay Director Henry T. B. Harris has been appointed to succeed Rear Admiral A. S. Kenny, retired, as paymaster general of

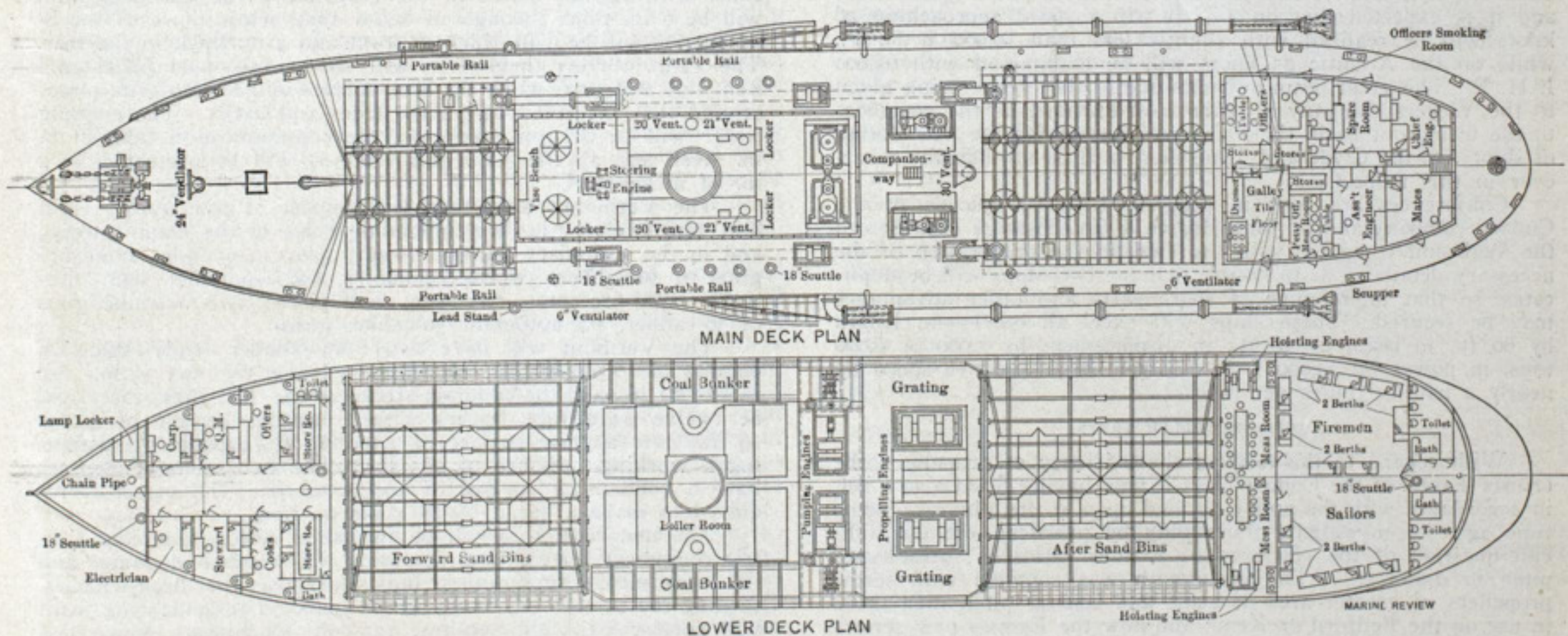


Longitudinal Section of Twin-Screw Suction Dredge.

derricks and the foremast one derrick. The dredges will be equipped with Hyde combination steam and hand windlass, Hyde steam capstan and Williamson steam steering engine. Each dredge will have two sand bins. Excellent accommodations are to be provided for the captain and crew and the vessel will be equipped with a machine shop for repair work. The dredges will be self-propelling, being equipped with two fore-and-aft vertical compound condensing engines, with cylinders of 22 and 44 in. by 30-in. stroke, supplied with steam from four Scotch boilers 14 ft. in diameter and 12 ft. long, each to have three 42-in. corrugated

the navy with the rank of rear admiral. Col. George F. Elliott succeeds Maj. Gen. Charles Heywood as commandant of the marine corps.

Contracts have been awarded to the Buffalo Dredging Co. for the construction of a \$1,000,000 canal, slip and system of docks to be built in connection with the Rogers-Goodyear interests at South Buffalo. Work is to be started without delay and it is hoped to complete the undertaking within fifteen months. The



Deck Plan of the Twin-Screw Suction Dredge.

furnaces. They will be lighted throughout by electricity, the engine and generator being supplied by the government. The pumping engines, two in number, will be vertical, inverted, compound condensing engines with cylinders 16 and 32 in. by 18 in. stroke; and the dredging pumps will be of the centrifugal type of extra heavy construction, especially adapted for dredging, with 20-in. suction.

canal is being built by the Buffalo & Susquehanna Iron Co., the Buffalo & Susquehanna Railway Co., and the Pennsylvania Railway Co. It is to be 3,900 ft. long, 200 ft. wide and 23 ft. deep and will run east into the Buffalo & Susquehanna property from the harbor line. The slip is to be built by the Buffalo & Susquehanna Railway Co. and the Lackawanna Steel Co. It is proposed to make the slip 150 ft. wide and about the same depth as the canal.

SCOTCH SHIP BUILDING LETTER.

Lower Prices for Material bring some New Business—The big Cunarders—Trade Union Disputes, Propeller Tests, etc.

Glasgow, June 15.—The ship building situation is a little improved as a result of the cheapening tendency of material, which, however, is not yet so low as it ought to be in relation to the decline in pig iron and the general dullness of trade. Advices from your side are indicative of a lower range of prices impending, and there is a prospect of an early recurrence in force of German competition in iron and steel. On the other hand, our local production of steel ship plates and other ship building material is reduced by the stoppage of the Mossend Steel Works, which were closed May 31. These extensive and old-established works—erected originally by one of the famous Neilson family some seventy years ago for the manufacture of iron, and converted to steel in 1880—are about to be dismantled, as the present owners are going out of the trade and nobody seems to want their plant. Apropos, I notice that we imported 5,345 tons in May, and 20,783 tons in the five months ending May, of ship and boiler plates, from Belgium, Germany, etc. During the month of May we exported ninety-three new ships of a tonnage of 30,697 tons, making for the five months a total of 377 vessels and 105,152 tons. The month's total consisted of one warship of 180 tons, seventeen merchant steamers of 28,874 tons, four sailing vessels of 281 tons, and seventy-one boats, etc., of 1,357 tons. The value of the month's exports of new ships is £517,172, and of the five months £1,798,068.

THE BIG CUNARDERS.

The Cunard company have placed an order for a new intermediate steamer with John Brown & Co., Clydebank, Glasgow. This vessel is only second in importance to the high-speed steamers in negotiation, the length being 650 ft., the passenger accommodation extensive and modern in comfort and completeness, and the speed 18 knots at sea. Although the contracts for the two fast ships have not been actually signed, it is now a practical certainty that one vessel will be constructed by John Brown & Co., Glasgow, and the other by Swan & Hunter, Newcastle-on-Tyne, the latter being engined by the Wallsend Slipway & Engineering Co. The negotiations have been protracted, as there were four government departments to be satisfied—the Admiralty in connection with the ships as merchant cruisers; the board of trade with passenger accommodation and safety generally; the postoffice so far as mail rooms, etc., are concerned; and the treasury, whose interest is with the financial arrangements. All these matters being now about arranged, the work of building the ships will soon be commenced. The design has required many conferences, and the first models resulting from these consultations were thoroughly tested at the experimental tank of the government. It was then found that the power necessary to drive a ship of the dimensions given at the high speed set down in the conditions of the contract was almost prohibitive. Consideration of the problem was entered upon by three firms anew, one urging the adoption of different dimensions. Model tests were made and the final decision will now be in favor of the recommendations of the Clydebank yard. The model experiments have all been in the direction of increasing the beam. Originally 76 and 78 ft. were laid down in the designs, but now with a length of 760 ft. the width is to be 85 ft., which will enable the co-efficient of fineness to be much less, thereby reducing resistance for the same displacement. This displacement will be about 35,000 tons, and it is expected that on a trial trip a speed approaching 26 knots will be realized with slightly less than 70,000 I. H. P., while on the Atlantic 25 knots will be maintained with 65,000 I. H. P. The great beam prevents one of the orders being given to the Vickers company at Barrow-in-Furness, as the entrances to the fitting-out basin there are too narrow for the new design of ship. On the Clyde and Tyne there will be no difficulty whatever in this respect.

Conferences are now in progress between officials of the Cunard company and of John Brown & Co., Swan & Hunter and the Wallsend company, with the view to the preparation of the necessary details so as to ensure that the two ships will be duplicates, so that interchange of spare parts and other advantages may be secured. These ships will excel all others—in length by 60 ft., in beam by 10 ft., in displacement by 5,000 or 6,000 tons, in power by 23,000 I. H. P., and in prospective speed by nearly 2 nautical miles per hour.

MORE PROPELLER TESTS.

With regard to the tests of the efficiency of propellers, the cruiser Essex of the County class is now having fitted a new set, in accordance with the policy decided upon at the admiralty some time ago "to investigate thoroughly by practical test the difficult question of the efficiency of various ratios of surface and pitch to diameter." The Monmouth was supplied with screw propellers of greater area of blade and coarser pitch than those in use on the Bedford or Kent; and now the Essex's new screws will differ from either. This difficult question is being grappled with vigorously, although the exigencies of the service preclude the fullest data being published. It would be well if something could be done apart from government service in the direction of solving this problem. When Messrs. Alexander Stephen & Sons of Glasgow entered upon the trials of their yacht Emerald, driven by Parson's steam turbines, driving three shafts, it was determined to fit only one screw propeller to each of the three shafts instead of two propellers on each of the two side shafts,

as had been the practice with preceding turbine-driven ships, for both naval and merchant service. The results were very satisfactory as regards speed and silent working, and it is probable that in future all turbine boats will be fitted in the same way.

TRADE UNION DISPUTES.

Disputes between trade unions as to the demarcation of work are among the most fruitful and frequent sources of trouble in our ship yards and engine shops. Two cases are now in point. A dispute has arisen between the holeborers and the caulkers and riveters at Messrs. Scott & Co.'s works, Greenock, who are engaged upon the cruiser Argyll. The point has reference to the tapping of the holes and to the setting up of the studs. Both classes of workmen claim the exclusive right to the work. At a meeting of the men it was decided to refer the question to a representative of the society district committee along with a representative of the firm. It is claimed by the caulkers and riveters, that, according to the accepted rules, they possess the prerogative of performing this particular work, while the holeborers on the other hand argue to the contrary. Pending the decision of the conference a number of the holeborers continue work, but some others remain idle until the settlement. Again, the engineers are on strike at the Caledon Ship Building & Engineering Yard, Dundee, because they object to plumbers and copper-smiths executing work which, they maintain, should be done by them. These are the wrangles that worry the soul out of a works' manager.

The combine between C. S. Swan & Hunter and Wigham-Richardson & Co., both near Newcastle-on-Tyne, is to be followed up by a further combination between these two firms and the Wallsend Slipway & Engineering Co. The immediate object of this amalgamation is to secure a contract for one of the new Cunard monsters.

PRELIMINARY WORK ON THE VERMONT.

The recent award of contracts for the three new 16,000-ton battleships of the Vermont class has given the Vermont to the Fore River Ship & Engine Co., and the preliminary work has been started in the yard at Quincy Point, Boston harbor. This vessel, officially known as battleship No. 20, and her two sisters, differ from the members of the same class ordered some months ago only in details, their general dimensions being: Length between perpendiculars, 45 ft.; length over all, 456 ft. 4 in.; breadth, 76 ft. 8 in.; depth, 46 ft.; displacement, about 16,000 tons; draught, 24 ft. 6 in.

The Vermont will have two 75-ft. military masts of steel, one forward and one aft of the superstructure, and three smokestacks. There are four 8-in. gun turrets, one at each corner of the superstructure, besides the two 12-in. turrets, forward and aft on the main deck. The hull will be built of ½-in. steel with a double bottom and watertight bulkheads, and 28 tons of corn-pith cellulose in a coffer-dam 7 ft. high and 30 in. wide will insure protection against injuries at the waterline.

The defensive armor will consist of a protective-deck with 1½-in. nickel-steel plates on the flat and 3-in. nickel-steel plates on the slopes, a main belt of 9-in. armor 284 ft. long and tapering in width from 9 ft. 3 in. amidships to 8 ft forward and aft, being reduced, in three reductions, to a thickness of 4 in. at the ends and 7-in. thick casemate armor around the 7-in. gunports. The barbettes of the 12-in. turrets will have front plates 10 in. thick with 7½-in. plates in the rear above the gun-deck, and will be 6 in. thick throughout below that, while those of the 8-in. turrets will be 6 in. thick in front and 4 in. thick in the rear. The 12-in. turrets themselves will have 12-in. port plates and 8-in. side and rear, while the 8-in. turrets will have 6½-in. plates around the port and 6-in. on the sides and backs. The conning tower will be of 9-in. steel, and the communication tube of 6-in. steel, and all the 3-in. gun-positions will be protected by 2 in. of nickel-steel.

The Vermont's armament will consist of four 12-in., eight 8-in. and twelve 7-in. breech loading rifles in the main battery; and in the secondary battery, twenty 3-in. 14-pounder rapid-fire guns of 50-caliber, twelve 3-pounder, six 1-pounder semi-automatic rapid-fire guns, two 3-in. field pieces, two machine guns of 30-caliber, six automatic 30-caliber guns.

The Vermont will have two four-cylinder triple-expansion engines of 16,500 H. P., the cylinders being 32½ in., 53 in., and two of 61 in., and the common stroke 48 in. For these there will be twelve water-tube boilers with a heating surface of 46,750 sq. ft., over a grate surface of 1,100 sq. ft., capable of sustaining a working pressure of 265 lbs. The two main condensers have a condensing surface of 10,375 sq. ft. The vessel is required to make a speed of 18 knots an hour.

The new battleship will be furnished with a complete electric equipment for lighting, operating the cranes and pumps and the twenty-two ammunition hoists, serving the deck-winch, turning the turrets and handling the guns. The generating plant will consist of eight 100-kw., 125-volt machines. A wireless telegraph outfit is included in the specifications. The contract calls for the completion of the three new vessels of the Vermont class in forty-two months. The Vermont herself will cost \$4,179,000 for the hull and engines.

A. Wallace, who now has a small ship yard on False creek, Vancouver, B. C., has purchased 300 ft. of water front at North Vancouver, where he proposes establishing another yard and may eventually concentrate all his work at the new yard.

THE WHEREFORE OF SHIP BUILDERS' TROUBLES.

New York, June 24.—Those who are in a position to know whereof they speak, but do not look beyond immediate causes, are of the opinion that the troubles of the United States Ship Building Co. were brought about by the failure of the Trust Company of the Republic to carry out its part of the program to float the securities of the ship building syndicate, and that failure of the trust company to make good was occasioned by the belief among investors that under present conditions of American shipping interests the ship building company was overstocked and would not be able to pay dividends on its capitalization.

When the United States Ship Building Co. was formed there was talk of a boom in American ship building and in anticipating such a state of affairs the prospect looked bright for the consolidation. But congress, which was expected to do something for the relief of the ills under which American shipping is struggling, failed to act on the matter, hence the non-appearance of the anticipated boom and a consequent depression in ship building, which has been sorely felt by all the ship yards on the coasts, extending latterly also to those of the great lakes.

Those who are personally acquainted with Mr. Lewis Nixon, who has been the head of the consolidation, have every reason to believe that he went into it with his whole soul and in the firm belief that it would be a great success, even without the full working capital promised, which for reasons before mentioned failed to materialize. He has made a fight in which the shipping interests of the country are deeply interested. His demands for months have been for more working capital, which it seems has been denied him. Notwithstanding this, it is reported that the company has due it enough to pay its accounts, with quick assets of many times the amount of notes outstanding against it. This being the case, it is to be hoped that the important interests centering around the company will not be jeopardized by legal complications.

If the United States Ship Building Co. was alone among ship builders of the country in contending with financial difficulties its troubles might all justly be laid to overcapitalization, but under the circumstances it becomes necessary to seek beyond this for the cause. That the anticipations of the ship builders of the country have not been realized is very largely if not entirely due to the failure of congress to do anything whatever for the encouragement of American shipping. It goes without saying that other great industries of the country are fostered and protected by law and have been for the past forty years, until what were formerly termed "infant industries" have developed into giants, fit to cope with those of any country in the world, if not surpass them; as note the Steel Corporation and other great corporate interests which might be named. And yet, in all these forty years of encouragement of American industries, with consequent prosperity for their promoters, the great—we speak advisedly and would emphasize—the *great shipping industry* has seemingly been forgotten, as it is patent that it has been sadly neglected by those who have the authority and power to come to its aid. As a consequence millions of dollars are annually diverted from American to foreign coffers.

That congress has not long since done something to relieve the great handicap under which American shipping has been laboring since 1861 is perhaps owing to two reasons, one being the general lack of knowledge among the people of the importance of the shipping interests to the country and the other the manly independence of the mariner combined with his slight knowledge of politics. It is worthy of note that for this reason the ship owners and masters of ocean going craft, while sorely feeling the handicap under which they are placed by present conditions, have been slow to ask legislative aid to enable them to compete with foreign shipping on the high seas. That proper legislation looking to the removal of this handicap has not been enacted by congress is one of the most surprising things connected with politics, always full of surprises, and the only way to account for it is the lack of insistence and persistence on the part of those directly interested, in a demand on congress for relief from present conditions.

No other industry is so thoroughly regulated and supervised by the general government as shipping. Masters, engineers and pilots must pass a rigid examination and obtain a license from the United States government before they are allowed to obtain a position or perform their several duties, and they are kept constantly under the supervision of government officials. Even still further, although one may be a master of vessels plying the great lakes and fully capable of passing an examination as master of ocean-going craft he is compelled by law to sail the ocean for three years in a subordinate position before he can obtain a license as master of an ocean vessel. What would occur to our politicians were any such regulations and restrictions as are applied to the mariner enforced in industrial or commercial lines ashore? And yet, as before stated, all American industries ashore are most sacredly guarded against foreign invasion.

This state of affairs is aptly illustrated by the story of the white man and Indian who went hunting together with the agreement that they were to divide the proceeds of the hunt equally between them. The white man succeeded in shooting a buzzard while the Indian got a turkey and when it came to a division the white man said: "Now you can take the buzzard and I'll take the turkey, or I'll take the turkey and you can have the buzzard." Surely the landsman of this country has been getting buzzard. And still has he been patient and long-suffering, year after

year seeing his means of livelihood growing slimmer and slimmer, while the landsman was waxing fat.

It is surely high time that congress should do something for the relief of American shipping by enacting a just measure that will insure a fair showing for American commerce on the high seas; such a showing as it had prior to 1861 when Yankee ships were in the van as ocean carriers. Not only the good of the merchant marine and ship building interests, but the welfare of the country demands that congress should get together on this important question and solve it to the advantage of all concerned. Let us ask Will it do it? and hope for an echo from each and every member of congress in the next session—"Do it."

G. W. R.

DELAWARE RIVER SHIP BUILDING.

Philadelphia, June 24.—Samuel M. Knox, the present secretary of the New York Ship Building Co., succeeds Capt. William G. Randle as treasurer of the company. Capt. Randle, who resigned the treasurership, remains with the company as superintending captain and as a member of the board of directors. Since his election to the office of president of the company, De Courcey May has applied himself vigorously to the duties of that position, with the result that work at the yards has progressed expeditiously. The oil barge Neshannock, being constructed for the J. M. Guffey Petroleum Co. of Pittsburg, was launched Saturday morning, Mrs. Edna V. Fourtune, wife of the general foreman of the ship building company, being sponsor. The Neshannock is 130 ft. long, 23 ft. 4 in. beam, 9 ft. depth of hold and has a capacity of 110,000 gallons of oil. She is designed for harbor trade. The steamship Larimer, launched May 23, and a sister ship to the Ligonier, was given her trial trip Monday, with Capt. Randle in command. The Larimer is in the 360-ft. class, was built for the Guffey company, and is to be used in the oil-carrying trade. She is of 10 knots speed. The 117-ft. steam tug, unnamed, being constructed for the New York police department, will be launched by the company in about two weeks. Work on the Mongolia, one of the large steamships designed for the Pacific trade, is progressing rapidly and it is expected she will be launched early in August. The Mongolia's dimensions are 625 ft. long, 65 ft. beam and 44 ft. depth. Her dead weight capacity is to be 13,610 tons.

John W. Grange and Andrew H. McNeal, stockholders in the William Cramp & Sons Ship & Engine Building Co., asked the common pleas court, Philadelphia, last week, to prevent the carrying out of the scheme to increase the capital stock of the corporation. Grange owns 100 shares of stock and McNeal 350 shares. In the bill in equity filed they declare that the proposed increase from \$5,000,000 to \$6,250,000 in the capital stock, and of the mortgage indebtedness from \$1,800,000 to \$7,500,000 is not for the best interests of the shareholders. They object especially to Drexel & Co. receiving \$250,000 for underwriting the proposed issue. They ask that an injunction be issued, restraining the corporation from carrying out its plan. Referring to the application for an injunction Edwin S. Cramp, vice-president of the ship building company, said: "It is only to be expected that some of the stockholders in a concern which is not paying dividends would be dissatisfied. But we were not aware that this suit was to be brought. Drexel & Co. are not to be paid \$250,000, as alleged." It was arranged to hold a special meeting of the stockholders of the company this week for the purpose of approving or disapproving of the proposed increase of capital.

The Neafie & Levy Ship & Engine Building Co. has been awarded a contract by the Philadelphia & Reading Railway Co. for a powerful steel tug, to be 115 ft long, and provided with all modern improvements necessary for outside or coast towing. The new tug will be used for work in New York harbor. Neafie & Levy have also secured a contract for building a cutter, to cost not to exceed \$35,000, for the quarantine service.

The passenger steamer Calvin Austin, being constructed at the Harlan & Hollingsworth yards, Wilmington, Del., will be completed July 1. She goes into service between Boston and Portland. The passenger steamer Charles W. Morse, which will ply between Albany and New York on the People's Line, will be completed, it is expected, about the middle of July.

Mathis & Co., Camden ship builders, whose works were recently destroyed by fire, have started in rebuilding and have begun work on one building which is to be of frame covered with iron, two stories high and 35x75 ft. in dimensions. Another structure 14x18 ft. is to be built.

Thomas H. Savery, president of the Pusey & Jones Co. of Wilmington, has been entertaining as a guest P. Smidt Van Gelder, one of the most prominent manufacturers of Europe, who is traveling around the world. He has been a patron of the company for years.

At the Dialogue shipyards, Camden, orders are expected from Luttenbach, the tug man of New York, for two tank steamers. They will be 250 ft. long, about 35 ft. beam and 11 or 12 ft. draught.

Plans for the training brigs Intrepid and Cumberland, to be built at the Mare Island and Boston navy yards, respectively, were completed by the naval board of construction last week. The vessels are to be bark-rigged and to have steel hulls. They will be 175 ft. long, 45 ft. beam and 16 ft. 3 in. deep. Accommodations will be provided on each for 300 apprentices and a crew of 100 men. The battery will consist of six 4-in. rapid-fire rifles, four 6-pounders, two 1-pounders and two Colt automatic guns.

REVIEW OF AMERICAN IRON TRADE.

In a general review of the American iron trade the Bulletin of the American Iron & Steel Association gives the same conservative note of warning that was given in these columns recently—that the wise man will not be unprepared for reaction. The general tone of the article, however, is confident. It says:

"In our last annual report, which was printed in June, 1902, the opinion was expressed that, 'while a reaction from the great prosperity that now prevails is certain to come some day, from causes which no prophet can now foretell, it seems reasonably certain that the year 1902 will close under as favorable industrial conditions as signalized its opening and that they will be continued far into 1903 and perhaps longer.' The reasons for this hopeful opinion were given in detail, particularly those which related to the iron trade. It is a pleasure to be able to say that the extraordinary prosperity which prevailed a year ago has continued to the present time, and that it bids fair to continue for some time to come without serious interruption. No wise man will undertake to set metes and bounds to this prosperity. Upon the other hand a wise man will not neglect to observe the signs of overtrading or overproduction or be unprepared for a business reaction when it comes. Our annual reports during the past thirty years have chronicled many financial panics and visitations of hard times. Prosperous as this country is today and has been for several years it is not so prosperous that it can digest all the speculative schemes that are continually being offered to the credulous and unthinking. Nor is there room or excuse for business enterprises, otherwise meritorious, that are projected far in advance of the wants of the present generation.

"The interruptions to the general prosperity in 1902 included a general strike in the anthracite coal region and the inability of many leading railroads to promptly handle all the freight that was offered to them. No other strike of the year was either general or of far-reaching effect. The anthracite strike, which virtually closed all the anthracite coal mines of Pennsylvania, began on May 12, 1902, and lasted until Oct. 23 of the same year, when there was a general resumption of work. During these twenty-three weeks little anthracite coal was mined and about 140,000 workmen were idle. The workmen lost about \$25,000,000 in wages, the operators lost about \$46,000,000 in sales, and the railroads lost about \$28,000,000 in freight charges. These were serious losses. The shipments of anthracite coal in 1902 were 22,367,711 gross tons less than in 1901. The scarcity of anthracite coal from May to October greatly restricted the operations of eastern iron and steel manufacturers.

"The railroad trouble mentioned was also of a serious character. Soon after the present boom in the iron trade got fairly under way at the beginning of 1899 it became manifest that the railroads which haul most of the raw materials and finished products of iron and steel were lacking in car and locomotive equipment, so that much of the freight to and from our iron and steel works could not be promptly shipped and delivered. Notwithstanding the efforts of railroad managers to meet this difficulty by ordering new rolling stock, the car and locomotive shortage continued and manufacturers' troubles increased. In 1902, with thousands of new cars and locomotives in service, a fresh difficulty presented itself, or, rather, a complication that had previously existed assumed an acute stage—there were not enough tracks and yard facilities to accommodate the increased rolling stock. Throughout the greater part of the year and until March of the present year the congestion of freight on many lines of railroad, especially those which run into Pittsburg or which tap the Connellsville coke region, was a matter of daily occurrence. These lines had absolutely broken down. As one result of the inability of the railroads to promptly move coke, iron ore, pig iron and finished products many consumers of iron and steel were compelled to send abroad orders that could otherwise have been filled at home. Another result was, of course, a smaller production of some forms of iron and steel in 1902 than would have been possible under more favorable conditions. Blast furnaces were often banked for many days at a time because a sufficient supply of coke or iron ore could not be obtained, and the mills were often operated on short time because they could not obtain a sufficient supply of pig iron or billets. From this condition there was but little relief until the spring of 1903. The extraordinary efforts of railroad managers to meet in every way the increased demand upon their roads have at last resulted in the virtual ending of the congestion we have described. Other industries were but slightly affected by this congestion.

"In May and June, 1902, so general was the opinion that the railroad managers would be able thereafter to supply the wants of the mills and furnaces, and thus enable our manufacturers to meet with promptness the extraordinary home demand for their products, that a further advance in prices, which had previously been of moderate proportions, was not generally expected. But stable conditions did not continue because the railroad problem was not solved. Prices for most products rose during the remainder of the year, but there was no sensational advance except for Connellsville coke, for some shipments of which raw material fabulous prices were paid. The present price of coke is \$3.50 a net ton, which is somewhat higher than a year ago. The prices of iron ore for 1903 range from 25 cents to \$1 a ton higher than in 1902. But the tendency has been toward lower figures since the close of 1902 for many iron and steel products, because, through improved railroad facilities and a steadily increasing

capacity of production, orders can now be more promptly filled than a few months ago.

"As already mentioned, there was an increased demand in 1902 for foreign iron and steel products to meet a deficiency in the home supply. There was also a further decline in that year in our exports of these products. With an active home demand and higher prices this decline in our exports was inevitable. The increase in our imports of iron and steel had indeed commenced in 1899 and the decrease in our exports in 1901, but this turn in the tide became more marked in 1902 as the months passed. In the years immediately preceding 1899 our imports of iron and steel had greatly declined and until 1900 our exports had greatly increased; now the conditions were reversed. The foreign value of our imports of iron and steel in 1902 exceeded that of any year since 1891. In 1902 we imported 625,383 tons of pig iron, spiegeleisen, and ferro-manganese, 109,510 tons of scrap iron and scrap steel 63,522 tons of rails and 289,318 tons of steel billets, bars, structural steel, etc. At the present moment, the indications are that in 1903 the imports of iron and steel will greatly decline as compared with 1902, but there is slight probability that our exports will increase. The home demand still taxes the capacity of our iron and steel works in all lines.

"Although, as has been explained, there was much interruption in 1902 to the continuous operation of our iron and steel works, the year's production of iron and steel was not only larger than that of any preceding year, but it was very much larger, as was also the production of iron ore and coke. The shipments of Lake Superior iron ore in 1902 amounted to 27,571,121 gross tons, as compared with 20,589,237 tons in 1901, and the shipments of Connellsville coke amounted to 14,138,740 net tons, against 12,609,949 tons in 1901. The production of pig iron in 1902 amounted to 17,821,307 gross tons against 15,878,354 tons in 1901; of Bessemer steel to 9,138,363 tons, against 8,713,302 tons; and of open-hearth steel to 5,687,729 tons, against 4,656,309 tons. It will not be many years, probably only one or two years, until this country will make one-half of all the pig iron and one-half of all the steel that the world produces.

"Labor in the iron and steel industries appears to be contented with its rewards, but in some other industries there is more or less discontent. In the iron trade, in the mining of coal, in the manufacture of coke, and in railroad transportation there have been material advances in wages in the last year."

CUNARD LINE WITHDRAWS FROM AGREEMENT.

The Cunard Steamship Co. has served the preliminary notice of its withdrawal from the North Atlantic passenger agreement. The line had already announced its intended withdrawal from the freight agreement and there is now little doubt that the company intends to seek business where and as it wishes without regard to the rates or sailings of other lines. There is no reason to believe, however, that a rate war is contemplated. The reason for the action of the Cunard Line, as given by practical men, is that the present service of the line is maintained by slower boats than the best of the German and some other vessels and that the line finds itself obliged to make concessions on passenger business. The International Mercantile Marine Co., it is pointed out, is handicapped in precisely the same way as the Cunard Line in bidding for the bulk of the year-round traffic. It has endeavored to maintain its prices relatively as high as those of the crack German steamships with the result that the latter have enjoyed the cream of the traffic. The new steamers of the White Star Line have proved exceedingly popular, their steadiness and comfort especially commending them to summer tourists unaccustomed to ocean travel, but it is said that their other vessels have not fared well, while the decline in freights has seriously affected earnings. A report that the shipping combination was to undergo reorganization financially, however, met with instant denial at the offices of J. P. Morgan & Co.

Meanwhile the Cunard company is strengthening its position. It has given an order to John Brown & Co., Clydebank, for a steamer 650 ft. long, which, while being as steady as the Celtic and Cedric, will have superior speed. Then there are the two steamships, to be built with governmental aid, which are to have a speed of 26 knots.

George J. Gould, who has the turbine yacht Emerald under charter, is so pleased with her that he has decided to have a larger steamer that will better suit his requirements. Before placing his order, however, he will wait until the Lorena, the turbine steamer built for A. L. Barber, reaches this country. Mr. Barber has offered the vessel to Mr. Gould. The Emerald was built for Sir Christopher Furness and has done all that was expected of her. She is not speedy but is steady and free from vibration. The turbines make no perceptible vibratory motion at 15 knots. The Tarantula, which was purchased by Mr. W. K. Vanderbilt, is to come across the Atlantic shortly.

International Mercantile Marine shares have fallen to 25 for the preferred and 7 for the common. The fluctuation in these shares is greater than that which has occurred in the shares of any of the various shipping companies. All of them show some decline but not such marked precipitation. Cunard shares have declined 4 points since 1900, Elder-Dempster 2 points, P. & O. 9 points, Allan Line 1 point and Royal Mail 16 points; while International Mercantile Marine preferred has declined 50 per cent. and common 75 per cent.

ENGINEERING AS A CAREER.

Rear Admiral George Wallace Melville, engineer in chief of the navy department, recently delivered the commencement address at Webb's Academy. He chose as his subject, "Engineering as a Career; and the Attainment of Success." He said in part:

"There never existed a livelier interest, a deeper sympathy, nor a closer active relation between the engineering institutions and the engineering professions than at the present time. The general aims and methods of the technical schools and conditions and requirements of every-day practice are well understood by both engineers and educators, and special problems which present themselves because of progress or change are constantly being exploited and discussed in the technical press and university publications or at the meetings of the different engineering and educational societies. The active relation which exists between the professors of our universities and our leading engineers serves to broaden the mind and to steady the hand of both. The technical teachers of the hour do not only see to it that they give to the youth entrusted to their care an adequate supply of engineering knowledge and an insight into the essentials of business, but they put forth every effort to turn out, so far as is possible, men—men trained to ideals of character and of good citizenship, and marked by a liberal culture.

"Of all professions, and in the widest and truest sense, engineering provides the 'tools' whereby its members can carve for themselves noble and useful careers. No member of any profession has a larger share of the blessings and benefits of both knowledge and work than the engineer, and no man should be stronger or steadier. A great profession begets great men. In requiring its members to deal directly with the great forces and materials of nature and to organize and manage vast industrial interests—and thus to occupy constantly posts of exceeding danger, difficulty and responsibility—the engineering profession calls for marked courage, self-reliance and strength of character. In requiring its members to stand face to face with facts and figures and to strike the golden mean between the accuracy and perfection of science and the despatch and limitations of business the engineering profession calls for exact knowledge, expert skill and sound sense and judgment. Because of the strict requirements of his profession—because the lack of either integrity or ability brings quick and certain failure—no laborer is worthier of his hire than the engineer. The financial return for his work essentially represents 'for value received.' The power and standing of the engineer result directly from the worth and substance of his profession, which give him natural preferment. This preferment he can only maintain by individual merit and fitness.

"The character and scope of his profession make the engineer the all-important and ever-present factor in wide and varied endeavor. He actuates, maintains and furthers the business of peace and war on land and sea. The engineering profession dominates the age. The evidence of its greatness and glory is so tangible and so universal that the worth of the engineer cannot be ignored. Besides, the power and leadership which by the force of circumstances his profession bestows as a reward for courage and ability, to-day the engineer is not without honor and appreciation. The main or underlying conditions for success are familiar to all, and may be stated in a few words. They are sound health, self-control, industry and integrity. Men who achieve great deeds not only possess great physical endurance and strength of character, tireless energy and an enormous capacity for work, but they are noted for their courage, faith and enthusiasm, and for their persistency of purpose to succeed in whatever they may undertake. This apart from their intellectual ability, which may be marked.

"As regards change or progress, to speak figuratively, not only must a man continually struggle to keep himself afloat and to adapt himself to changing currents, but he has at all times to be alert to discover the first approach of the wave of progress, and by strenuous endeavor to place himself in a position where, instead of being swamped by its advance, he will be able to ride upon it in safety. But there is also an especial call for courage at times, in addition to that eternal industry, adaptiveness and progressiveness which constitute principally the price of sustained success. Whether it be from pure malevolence or aggressiveness, overriding ambition or mistaken notions of right and policy, many men unwarrantably go upon the warpath. But whatever may be the precise motive which actuates them, by their persistent encroachments they force other men, no less courageous, if more peaceably disposed, to take active steps to protect their interests.

"There will come a day when you will be thus wrongfully attacked. This attack may be so savage and determined that it will become necessary for you to exert every possible effort for defense if you would preserve your 'business life.' It is generally conceded by those skilled in warfare that the best way to defend yourself successfully is to turn about and attack your enemy. 'Make your enemy's coast your first line of defense,' is the dictum of the naval authorities—or, in other words, seek the attacking foe on his own ground. It will become necessary, therefore, in order to save yourself from great business loss, if not total ruin, for you to scheme by day and to dream by night as to the best possible means of honorably and in thorough man-fashion attacking his interests and taking a 'fall out of him.' We constantly see in life one man deliberately pit himself against another and compel him to defend himself, and in doing so to attack in turn the first. And if this business battle be of an especially determined nature, it may continue until one of the

'combatants' is completely expended or until both are badly crippled. It is this capacity to earn his daily living, change as the world changes, advance as it goes forward and hold his own when it comes to an out-and-out business conflict that essentially makes the man of success—the possession of that courage and capacity and physical endurance to work, progress and fight, all at the same time if need be, as is often the case.

"The high type of man does not go about seeking whom he may devour—though he may know something of the joyousness of battle or the 'rapture of the fight,' once it is fully on.' To the contrary, he would instinctively follow so far as is possible the injunction of Paul to the Romans, 'to live peaceably with all men.' But the only way in which he can help to maintain this state of peace is by being constantly prepared and being able to deliver telling blows when it becomes necessary. When a show of strength will not suffice, there is nothing that conduces so effectually to the peace and well-being of the business world as to administer to the belligerently inclined a wholesome drubbing. And it is a circumstance which makes much for the success of a man's career if at the same time that he is known for his honorable dealing with all men he has the reputation of being a strong and determined fighter.

"No engineer has a more glorious future than the marine engineer, and you will have work to perform whose character and significance will draw forth all the fire and enthusiasm that you are capable of, and fill to overflowing the measure of your ambition. As marine engineers and the builders of seagoing ships you will, with the aid of large capital and skilled labor, unite the interests and endeavor of the peoples of the most remote parts of the earth, and thus greatly increase the commerce, the intercourse and the opportunity for friendly office among men. In all likelihood in your future you may not only do your full share in upbuilding and preserving in a state of efficiency your mercantile marine, but some of you may take a hand in the further development and maintenance of the navy, which will be necessary, not only adequately to defend the nation from invasion, guard its far-away interests and sustain its prestige and honor, but to protect its ocean carrying trade. You will see to it that in both fleets the United States will have the finest ships afloat.

"As one contemplates this occasion and strives to grasp its significance, he sees in the successful graduation of you young men the yearly fulfillment of the heart's desire of the noble founder of this institution, and realizes the perpetuity of his wise and benevolent purpose. There can only come from such contemplation the oft-recurring thought that we have here clearly and unmistakably, and such as may not be doubted, a true species of the immortality of man; the work and the good that a man has done living after him, helping and bestowing benefit upon others, as one strong and steady lamp lighteth another lamp, and another, and still another."

NEWPORT NEWS SHIP BUILDING.

Newport News, Va., June 24—An announcement is expected shortly to the effect that the Newport News Ship Building & Dry Dock Co. has been awarded contracts for two more large merchant steamships. The officials of the company here will not discuss the matter, other than to admit that there is strong probability that the yard will soon get two more ships to build. It will also bid on the two 13,000-ton battleships, for which the navy department will open proposals in a few weeks.

The German gunboat Panther is at the ship yard for overhauling and will remain about three months, it is understood. The cruiser Gazelle, also of the German navy, is now at Charleston after an extensive overhauling here and will soon leave on a cruise to the far north, which will end late in the summer at Newport, R. I. It is reported that the German cruiser Falke will follow the Gazelle and that the cruiser Vineta, flagship of Germany's squadron in the south Atlantic, which has been here twice for overhauling, will return again for attention. In future, it is stated, all of the repair work on Germany's war ships in American waters will be done here, and in order to superintend the work a naval constructor has been sent here to be on the ground all the time.

The armored cruiser Maryland will not be launched until September at the earliest. The new battleship Missouri will soon be ready for her builder's trial. She will have her official trial shortly after and will go into commission the latter part of the year. The American Line steamship St. Louis is expected here about August 1 to go in dry dock.

The coast defense squadron under Rear Admiral Sands sailed several days ago on its northern cruise. The squadron consists of the battleships Texas and Indiana, the training ship Hartford and the torpedo boat destroyers Barry, Bainbridge, Chauncey, Dale and Decatur. The Indiana and Hartford have the cadets from the naval academy at Annapolis aboard. The training ship squadron will assemble in Hampton Roads July 1 under Rear Admiral Wise. The Yankee will probably be flagship. The monitor Nevada, whose turret foundations were recently weakened by discharges of her 12-in. guns, has gone to the navy yard for repairs. The Arkansas, her sister, which went to St. Louis for the exposition dedicatory ceremonies, will arrive in Hampton Roads this week and will have her turret foundations strengthened in order to avoid the results of the Nevada's turret experiments. The cruiser Topeka and the auxiliary cruiser Prairie have returned to Hampton Roads and will join the training squadron.



FROM THE HEAD OF THE LAKES.

Duluth, Minn., June 24.—The Parent, first of the Great Lakes & St. Lawrence Transportation Co.'s ships to leave this port (May 10), has not yet made a round trip, but is expected here shortly. These vessels are carrying three loads per round trip, grain from Duluth to Quebec, pulpwood from a point near the Saguenay to Erie, or neighboring points, and coal or limestone from Lake Erie to Duluth. This takes a lot of time. The ships are designed so that in case the lake export trade does not come up to expectations they may be put into ocean trade. They are, as an inspection of the John Sharples indicates, good lumber carriers and would be suited to that trade on deep water. The company that has built this large and important fleet has organized a Canadian corporation and has put some \$200,000 into pulpwood lands below Quebec. There it is lumbering, floating the wood to the St. Lawrence and bringing it up to a lake market by these ships. The Great Lakes & St. Lawrence Transportation Co. is one of the most interesting experiments in transportation that has yet been attempted, and is full of possibilities for western flour and wheat shippers. There is money behind the company to carry out any plans it may care to undertake, and it is a factor of transportation whose full importance has not yet been realized.

Flour agents say that the lake business this summer is far less than in previous years and that the movement will probably drag all summer. Millers say they do not expect conditions to improve before the new crop gets well on the market. Cash wheat is so far above September, about 7 to 8 cents, that grinding is greatly handicapped. Wheat shipments are small, and there is little inquiry for room, either for wheat or flax. Wheat is decreasing somewhat, though receipts are more liberal than expected, and stocks are very small indeed. Grain shipments from the head of the lakes last week were 495,554 bu. Receipts were 499,935 bu. There are now in store at Duluth-Superior 4,717,136 bu. of all grains, of which flax forms the greater part.

It is said that there is quite a difference between the rate on wheat out of Duluth and that out of Canadian Lake Superior ports, an argument in favor of free trade in grain that will appeal especially to the Canadian farmer. This differential is claimed to run as high as 1½ cents, varying with demands on tonnage and other conditions.

For the first three weeks of June 1,000,000 tons of coal was received at docks in Superior, with about half as much in Duluth. This is by far the largest movement ever known at the head of the lakes, and is the cause of much delay and detention to shipping. The rush in soft coal is especially great, and docks handling it are working day and night in an effort to clear themselves. The shipping roads, also are at work overtime to get this coal forward as fast as possible.

Saturday, June 27, the D. M. Clemson and H. G. Dalton, large freighters for the ore trade, will be launched at the yard of the Superior Ship Building Co. Both names are well known to ore and vessel men.

The steamer A. E. Ames is in the West Superior dry dock for overhauling after a trip with rails from Antwerp for the Canadian Northern road.

Contracts for the proposed steel and tile elevators for Port Arthur, previously mentioned as under consideration, have been led, and preliminary work is under way. Plans have been made for the construction of three groups of fireproof grain elevators and storage houses on Rice's Point, Duluth, and if the present crop is up to anticipations part of the capacity will go up the coming season. The companies to build are the Eastern Elevator Co., who expect to erect 1,000,000 bu. capacity in steel and tile; the Pioneer Steel Elevator Co., 1,000,000 bu., similar construction, and McCarthy Bros., whose plans call for 1,500,000 bu. capacity of steel and tile. These houses are all to be put on the eastern side of Rice's Point on lands now owned by the several concerns, lying between the lower end of the point and the Peavey concrete house. This will give the head of the lakes 38,000,000 bu. capacity, of which Duluth will have some 18,500,000 bu., Superior the remainder. There is strong disinclination among grain men to erect additional capacity on the Wisconsin side of the harbor on account of recent attempts to change inspection and shipping methods, and for other reasons. Rice's Point is considered the ideal location for grain storage at the head of the lakes. All the houses of the Consolidated Elevator Co., 10,800,000 bu.; a Peavey plant, 5,250,000 bu., and the Duluth-Superior Milling Co., 1,600,000 bu., are now in that district.

At the Biwabik mine, where they have been the past winter stripping extensively with the idea of extending the through cut and widening the ore body to the north, they are now planning on a shipment this year of about 1,000,000 tons, which is an increase of 375,000 tons over last year. The mine is now shipping over the Duluth & Iron Range road to Two Harbors, in place of via

the Duluth, Mesabi & Northern. The change gives a shorter haul and adds a very large tonnage to the Iron Range road. The Mesabi line will hereafter haul nothing from any point east of Eveleth and Virginia. Its chief increase in traffic will hereafter come from the Hibbing district, which will come pretty near keeping it busy.

CHICAGO GRAIN SITUATION.

Chicago, June 24.—The movement of grain out of this port has been far lighter than was expected just before the opening of navigation, but Chicago grain has nevertheless had much to do with upholding the lake freight market as a whole. Note the fact that up to June 1 this year Escanaba ore shipments amounted to only 743,917 tons, as compared with 1,129,825 tons on the same date a year ago. The principal item of loss in ore shipments to June 1 of this year was at Escanaba. Duluth and Superior showed gains over last year. An increase in the grain movement made up for the loss in Escanaba ore, and the grain trade has engaged vessels to a greater extent than it has been given credit for. The report that quite a large quantity of grain was covered by contract for June shipment has been denied in vessel circles, but no matter what the vessels may be in which this grain is now moving, your correspondent has it on the best of authority that a large shipper, who like others a short time ago looked for heavy receipts of corn, paid 13½ cents for the first half of June on about 500,000 bu. of corn and 1½ cents on 500,000 to 750,000 bu. for the last half of June. This contract with other chartering from day to day is engaging quite an amount of vessel capacity, especially as the vessels are all sure to encounter delay in loading coal for return cargoes, which they will do in almost every instance at the present coal freights.

Of course it is understood that expectations here ran to larger receipts, but heavy rains and floods compelling postponement at the ordinary grain moving time, we must now apparently await the end of planting and cultivating for a movement of sufficient force to materially affect lake rates. Likewise the scarcity of corn has created an upturn in the prices for July delivery (Chicago almost 50 cents per bushel), and as the eastern buyers will not be inclined to sympathize with this condition, it is to be hoped that the prices will attract the western holders to marketing their grain. While rates today on a basis of 13½ cents wheat and 1¼ cents corn to Buffalo are just about where they stood a year ago, the grain records, as already noted, show shipments out of Chicago (lake and rail) considerably in excess of last year. Here are the figures:

	Jan. 1, 1903, to date	Jan. 1, 1902, to date.
Wheat	9,731,362 bu.	13,091,617 bu.
Corn	35,556,845 bu.	15,843,122 bu.
Oats	31,263,418 bu.	25,477,118 bu.
Rye	2,000,000 bu.	1,194,969 bu.
	<hr/> 78,551,625 bu.	<hr/> 55,611,826 bu.

The excess thus noted for this year is in round numbers 23,000,000 bu. For the past week the shipments of wheat, corn and oats, lake and rail, foot up 5,834,589 bu., compared with 4,280,331 bu. for the previous week and 3,779,230 bu. for the corresponding week last year. Turning now to stocks in public and private elevators, we find the following summary:

	Week Just Closed.	Previous Week.	Corresponding Week Last Yr.
Wheat	4,968,000 bu.	5,450,000 bu.	3,854,000 bu.
Corn	4,424,000 bu.	3,667,000 bu.	4,904,000 bu.
Oats	1,583,000 bu.	1,376,000 bu.	767,000 bu.
Rye	230,000 bu.	292,000 bu.	213,000 bu.
Barley	23,000 bu.	22,000 bu.	— bu.
	<hr/> 11,228,000 bu.	<hr/> 10,807,000 bu.	<hr/> 9,738,000 bu.

It will be noted that corn receipts are now fairly large and steady, about 600,000 bu. a day, but it is, of course, moving out quite freely. In view of the general freight situation, which certainly involves a great surplus of capacity if the vessels could be cared for in port, there is no talk of higher rates, but there is pretty good assurance that we will have a steady movement of grain throughout the summer.

We are drawing from a crop (1902) of 670,000,000 bu. of wheat and 2,523,000,000 bu. of corn, against 748,000,000 bu. and 1,500,000,000 bu., respectively, the year previous.

In prospect, as near as can now be estimated, our wheat crop of 1903 will be some 740,000,000 bu., and the corn crop something like 2,000,000,000 bu., while in the northwest region conditions are favorable for something over 100,000,000 bu., much of which will be in shape for shipment before closing of present season.

REPLY TO BARGE CANAL OPPONENTS.

At present the New York Sun is running a series of articles entitled "Letters of a Canal Contractor to His Son," and it is needless to say that they have to do with the enormous "graft" involved in a canal expenditure of \$110,000,000 by the state of New York. This series is merely incidental to the general opposition to the canal project by the Sun. All's grist that comes to its mill. Meanwhile the advocates of the canal are steadily answering the arguments of its opponents. Broadly speaking those who oppose the betterment of the canal do so for a selfish interest. They fear that it will work an injury to some established interest in which they have a part. Broadly speaking also, those who favor canal transportation do so from unselfish motives. They are simply interested in an additional avenue of transportation for the general good which will result. In behalf of the canal improvement state committee the last of a series of replies to the recent letter of the fifteen anti-canal state senators was issued this week. The statement is as follows:

"The suggestion has been made that it would be preferable to adopt the so-called 'Lake Ontario route' for an improved canal between Lake Erie and the Hudson river. This route has received careful investigation by competent engineers and by the business interests of the state, and has been rejected. Lake Ontario cannot be navigated by ordinary canal boats in the spring and fall, as the insurance rates on that class of vessel on Lake Ontario are prohibitive. To navigate the waters of Lake Ontario on this canal route, vessels must be of stronger and heavier construction than those vessels that are confined exclusively to canal navigation, and the additional cost of such a vessel capable of navigating Lake Ontario would be approximately 100 per cent. more than that of an ordinary canal boat, involving a much higher interest charge on the combined lake and canal vessel. The cost of maintenance and operation would necessarily be higher, as not only more men, but crews of higher training would be required. Owing to the weather conditions during the early spring and fall on Lake Ontario, the towing of barges would be dangerous, and at times impracticable. The substitution of the Lake Ontario route for that portion of the inland canal between Buffalo and Syracuse would deprive a considerable part of the state of the benefits that are expected to result from the improved waterway.

"As a last resort of the enemies of canal improvement in this state, the well-known national ship-canal proposition is brought forward. Such people, after charging danger to the state from the use of a very small amount of water for the 1,000-ton barge canal, clamor for a ship-canal that would require a very much larger quantity of water. The advocates of the ship-canal scheme present a very fascinating picture of ocean-going steamers taking freight direct from the western cities, through the lakes and through the canal, and across the ocean without breaking bulk. To compete with an ocean-going steamer of the present day such steamers must draw between 30 and 35 ft. of water. They would therefore require a depth of canal of 35 ft., with corresponding size of lock. They would furthermore require an entire reconstruction of the channels between the lakes, and of the harbor work in all lake cities. No estimates of a ship-canal of such size, and of the work needed to adapt the harbors of the great lakes to such craft has ever been made, and the expense of a ship-canal of this size with the expense of deepening the harbors and channels, would involve enormous sums of money heretofore unheard of. It is highly improbable that the congress of the United States would ever consent to undertake a work of this magnitude, which would be the signal for demands from all parts of the union for the execution of works of similar magnitude in favor of particular localities.

"New York state would be obliged to surrender the Erie canal to the national government, and New York's commerce and industries, so far as they depend upon the canal, would thenceforth be at the mercy of a hostile congressional majority when application is made for the appropriation necessary from time to time, to maintain the canal and the lake channels and harbors. Assuming that all these difficulties, which are insurmountable, can be overcome, what is the gain? A ship-canal that would not be used by ocean-going steamers! The type of vessel used for ocean transportation is totally different from the type in use on the lakes, as the type of vessel on the lakes again differs from that in use on the canal. The ocean-going steamer costs twice as much as the lake steamer, being built to withstand the storms of the North Atlantic, while a canal barge is a cheap affair, costing about one-fourth of the price of a lake steamer. In the opinion of ship builders, it is absolutely impossible to combine the three types in one vessel that would be economical for a trip through lake and canal, and across the ocean. The ocean steamer, of costly build, could not make a better rate of progress through the canal than 5 or 6 miles an hour, whereas, she is built for a speed of two or three times as much. The result would be economically disastrous to ocean steamers.

"Commenting on the ship-canal through the state, Andrew Carnegie says: 'It would never pay to run big ships from Buffalo to New York through any canal, not even a ship-canal. It is much cheaper to transfer from a 10,000-ton lake vessel to a 1,000-ton barge, and send it through the canal at slow speed, to be unloaded alongside into ocean-going ships, than to send ocean or lake vessels through the canal.'

"The ship-canal, in view of these objections, cannot for a moment be seriously considered in connection with the improvement of the waterways of the state of New York, and the argument of

a ship-canal can only be used as an obstruction to any improvement."

The members of the canal improvement state committee are Gustav H. Schwab, New York, chairman; Henry R. Herbert, New York, treasurer; Robert R. Hefford, Buffalo; Frederick O. Clarke, Oswego; Frank Brainard, New York; John W. Fisher, Buffalo; Frank S. Witherbee, Port Henry, Lake Champlain.

MR HERON GOES TO NAGASAKI.

Mr. A. C. Heron, who for the past two years has represented Lloyd's Register of British and Foreign Shipping on the great lakes, has received word from the London office transferring him to Nagasaki, Japan. The work which called Mr. Heron to the great lakes region has practically been finished, so that the headquarters in Cleveland will be abolished. All applications for lake survey must hereafter be made to the New York office. The post at Nagasaki is a very important one and a distinction is conferred upon Mr. Heron by selecting him for the office. Japan has latterly entered the list of ship building nations and is now turning out considerable product, and as Mr. Heron is a compound surveyor (meaning hull as well as engines) he is especially adapted for the place. Moreover he has other qualifications, as his experience with eastern customs is thorough. He was for a number of years in the British civil service in India and as the engineer of a British steamship he spent several years plying between oriental ports. His training has been especially severe and he is undeniably a very competent man, but like all competent men, a very modest one. Mr. Heron will leave for England next week.

LOWERING OF TUNNELS MEANS MUCH FOR CHICAGO.

Chicago, June 24.—The announcement, a few days ago, that the supreme court of Illinois decided that Chicago has the right and power to compel the street railway companies owning tunnels under the Chicago river to lower them so as to give free access to navigation is a matter of interest to vessel owners in all parts of the lakes. Of course this does not mean that the tunnels will be lowered this season, but the legal question, long a source of great annoyance, is settled and the tunnels must go down. The improvement will be very important from a lake shipping standpoint, for the reason that at present all vessels of about 17 ft. loaded draught are excluded by the tunnels from what is known as the South Branch quarter of the harbor, whereas there is no trouble whatever in navigating that portion of the river to its furthest point south with vessels of 17 ft. draught. There are some fine houses in the South Branch, notably the Armour Houses C, D, E and F, Rock Island A and B, Iowa and City, Indiana, Alton, Nebraska City, Keith elevators, Santa Fe and Wabash, all of which have been more or less constantly restricted by these tunnel obstructions. These elevators are capable of handling a large amount of grain and with free access to them practically a new field will be open to vessels of deep draught.

CANADIAN SHIPPING NOTES.

The Canadian Lake & Ocean Navigation Co. has elected J. H. Plummer president of the company in place of A. E. Ames, resigned. B. Folger, Sr., of Kingston, has been appointed general manager. This company is desirous of securing wharfage accommodations in Toronto, and has applied to the city council for a grant of the south end of the city wharf near the foot of Yonge street. The company proposes to operate three steamers between Montreal and Port Arthur in the bulk and package freight trade, maintaining its four turret-type steamers on the upper lakes in the bulk freight and grain trade.

The Canada, Atlantic & Plant Steamship Co. has elected the following officers: President, A. S. Haves of Boston, Mass.; treasurer, A. W. Percy of Boston; secretary and general manager, H. L. Chipman of Halifax, N. S.; other directors, F. J. Daggett and G. E. Gale of Boston; R. T. MacIlraith of Halifax, N. S. Capt. C. E. Pye will remain in charge of the steamer Halifax.

The premier of Nova Scotia has made a statement to the effect that the Dominion government is making arrangements with the Dominion Iron & Steel Co. by which that company will establish a yard for the building of steel steamers at Sydney, N. S.

The minister of marine contemplates placing the whole of the pilotage service of the country under the direct control of the department, and his suggestion is approved of by the Montreal harbor commission. The pilotage system on the St. Lawrence particularly is open to considerable criticism.

British insurance companies have paid over the \$395,000 for which the steamer Montreal was insured. The Montreal was built by the Bertram Company, Toronto, for the Richelieu & Ontario Navigation Co., and was burned at Montreal in March, while being completed.

The Dominion government steamer Stanley, which was specially constructed for the winter traffic between New Brunswick and Prince Edward island, and which was held by the ice for several weeks last winter, is to be further strengthened for the coming winter's service.

Capt. R. Fraser has resigned his position as marine superintendent of the Dominion Coal Co., on his appointment to a similar position with the Montreal Transportation Co.

The Niagara Navigation Co. of Toronto has declared an interim dividend of 4 per cent., payable July 2, and the Northern Navigation Co. of Ontario, Ltd., has declared a dividend of 5 per cent. for the half year ended June 30, also payable July 2.

AN ENGLISHMAN'S VIEW OF OUR SHIP YARDS.

What Mr. D. C. Cummings of the Iron & Steel Ship Builders & Boiler Makers' Society, a Member of the Mosely Commission, Thinks of Lake Yards.

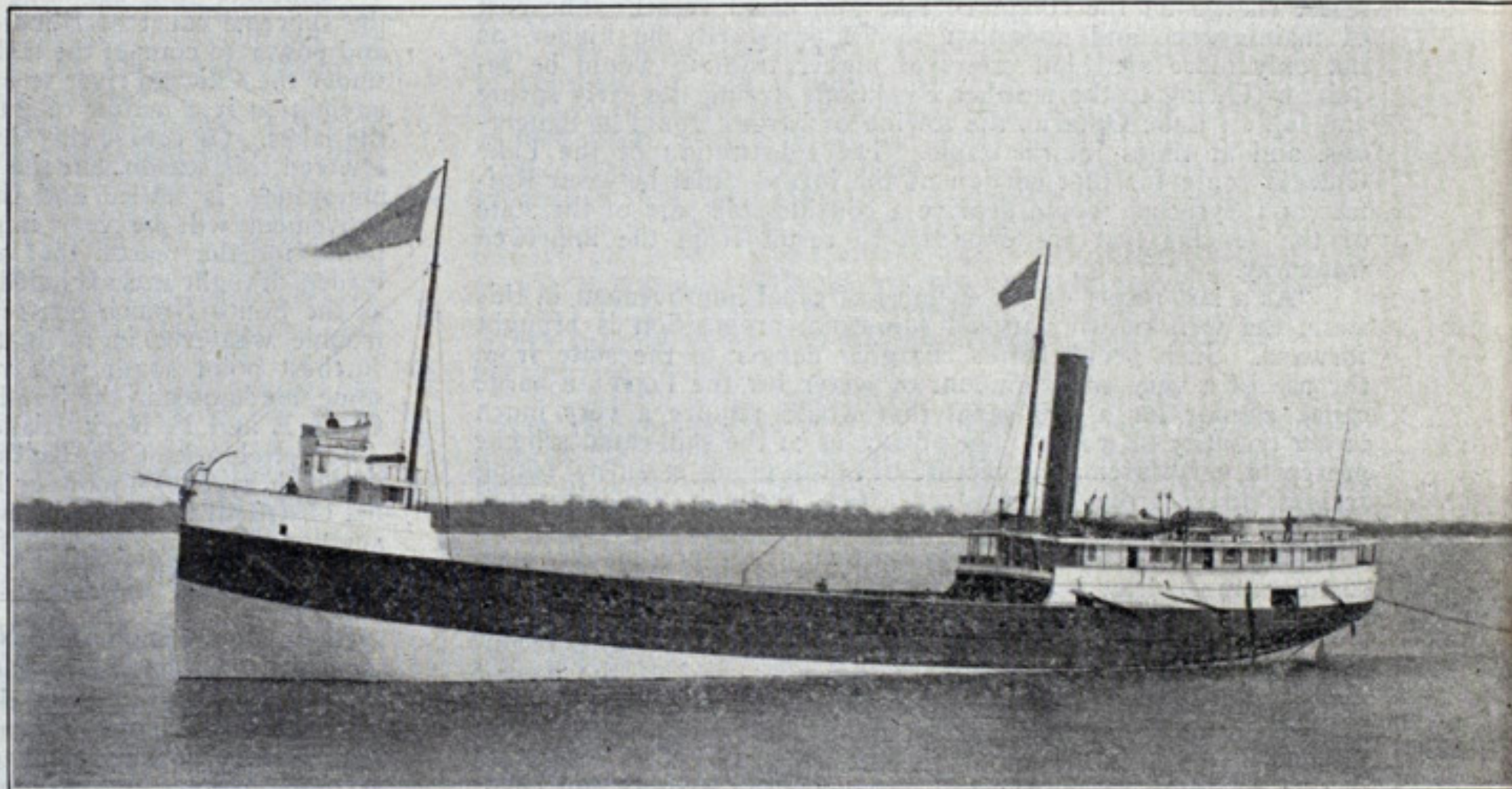
What does the Englishman think of our ship yards? This is an interesting subject. Not long ago the Mosely industrial commission, made up of representatives of numerous branches of industry, visited this country from England with the object of personally inquiring into American methods, conditions and workmanship for the purpose of comparison with methods, conditions, etc., in England. The Review in its issue of May 7 printed extracts from the report made after his return to England by Mr. D. C. Cummings of the Iron & Steel Ship Builders' and Boiler Makers' Society. What Mr. Cummings said of the ship yards of the great lakes was not included in these extracts, and a very interesting paragraph regarding the works of the New York Ship Building Co., Camden, N. J., was also omitted. Mr. Cummings is thus quoted as to the lakes and the New York Ship Building Co.:

"The type of steamer principally built on the great lakes is what is known as a coarse freighter, broad of beam and flat bottomed, constructed upon lines that make it possible to use templates for the 'midship portion and the decks. Generally speaking, the type of steamer built on the lakes could not be used for ocean traffic, and is only built for the lake trade, as it is impossible to get vessels into the lakes from the ocean, or from the lakes out to the ocean, that have a draught exceeding 18 ft. Competition in yards on the Atlantic border, or in other countries, is not a serious matter. What competition did exist was between the several yards on the lakes, but that now is a thing of the past, as the American Ship Building Co., under the presidency of Mr. W. L. Brown and the general management of Mr. J. C. Wallace, now own the eight largest ship building yards on the lakes, and may be said to almost monopolize the ship building of the great lakes. The marine boiler shops in connection with this company can be dismissed without much comment, for instead of their possessing anything of a novel or startling character in respect to new machinery, the contrary was the case. One thing is worthy of remark, and that is that punching is still largely resorted to, the holes being broached out afterwards to the size required. Mr. Wallace frankly stated that they could not in ship building successfully compete with Great Britain under British conditions and methods of work, a remark that was echoed by every ship building superintendent that we conversed with.

"The ship yard method in Great Britain is what is known as the squad system. In the states the individual system prevails, and at Lorain (the largest and most up-to-date yard on the lakes) we were informed that it was impossible to work platers, or fitters as they are called, in squads, because a strike would at once take place if the chief squads earned by piecework more money than those doing other and perhaps simpler work. Piecework is not so extensive as is customary in England. Hand riveters being more accustomed to work piecework than the platers, a comparison of the platers' prices is useless because of the individual work, and while some portions, namely, marking off, may at times be worked on piece, the other, that is, punching, may be done timework, or vice versa; setting the plates and putting them in place being also subdivided in the same manner. Hand riveting is worked on the forward and aft sections by piecework squads similar to our own, shell rivets being paid for at the following prices: $\frac{3}{4}$ -in. rivets, 12s. 6d. per 100; $\frac{7}{8}$ -in. rivets, 14s. 7d. per 100. These prices are far higher than our own, especially when we take into consideration that staging of a very complete character is erected and work made absolutely close and ready for riveting. Pneumatic tools are more extensively used than with us at home. Overhead cranes are extensively used over the building berths in various ways, staging being very elaborate and also very necessary on account of the air-driven tools.

"Conditions of employment in the lake ship yards are: Platers and smiths, timework, 12s. 6d.; piecework, 21s. to 25s. Hand riveters, timework, 12s. 6d.; piecework, about 21s. Pneumatic riveters receive about 11s. 6d. per day timework, and when on piecework earn about 14s. 6d. to 15s. per day. Men punching plates, etc., receive about 11s. per day on time rate for a full day's work. Hours of work are fifty-five in summer and sixty in winter. Present prices for material are £8. 5s. for plates, up to £9 for angles and other sections. Material is cheaper on the great lakes than on any other ship building center, reaching as much as £11 per ton in some places on the Atlantic border.

"At the New York Ship Building Co.'s works, Camden, N. J., ocean-going steamers are being built upon similar principles to those adopted on the lakes. Elaborate shops, elaborate machinery, elaborate staging, are the order of the day. Templates are almost exclusively used, but although the firm claim to use templates completely, yet such, we found, was not the case. Every practical ship builder ridiculed Camden methods, and my own convictions are that they are correct in their criticism; the advantage gained by templating flat sides, decks and flat bottoms was lost by the management carrying out the principle to the exclusion of common sense. Lorain yards turn out a greater tonnage with the employment of three template makers in the loft than the Camden yard can with fifty template makers and a large array of draughtsmen. The erection of portions of the vessel in wood skeleton in order to make a bored template for each plate accurately, each template only being used for two plates, namely, port and starboard, is evidently so costly a proceeding that it must appeal to the practical man as the carrying out of a good idea to the height of absurdity. The central idea governing the minds of the management seems to be building ships on the bridge-building principle; in fact, the plant seemed designed with that end in view. The equipment of the works was costly, and the returns under the system adopted may be a sorry speculation for the shareholders. Much we did hear, even inside the works, was not of a too reliable character, for there was more than a disposition to convey the impression that they even did more than was actually the case. We were accompanied by an engineer draughtsman, not a ship builder, who, when pressed upon salient points, apologized for that not being his department, and when we sought to ascertain particulars from the men, were



The tow is the steamer A. W. Comstock and barges, taken as they were leaving the ship yard of Abram Smith & Son, Algonac, M.

TOW OF LAKE LUMBER CARRIERS--COMBINE

politely told that questioning the workmen was against the rules. Altogether the visit was a disappointing one, and the methods at Camden, so much belauded and advertised, are certainly those that no level-headed American or British ship builder would dream of adopting."

PLANS FOR 13,000-TON BATTLESHIPS.

Secretary Moody has approved the plans for the two 13,000-ton battleships which have been prepared by the board of construction. The vessels are to be called the Idaho and Mississippi and will be of a type unlike any vessels now in the United States navy. The board subordinated speed and steaming radius to offensive and defensive qualities, making the vessels as powerful in armor and armament, although not so fast or able to steam so far without recoaling, as other recently-projected armorclads. The required speed is $16\frac{1}{2}$ knots as against 18 knots in the Connecticut type. In regard to armor and armament the 13,000-ton vessels will be as powerful as any ships ever built for the navy. They will carry four 12-in. guns mounted in two turrets, one forward and one aft, and a large broadside battery of 7-in. guns. Their secondary batteries will also be very powerful. The correspondence on the subject of the plans for these battleships was made public at the navy department last week. The board of construction in its report says:

"The board has had under consideration a number of sketch plans of types of vessels of 13,000 tons displacement, and has concluded that the intent of the act would be best complied with, and the interests of the navy furthered under the act of March 3, 1903, by retaining for the vessels in question as nearly as possible the offensive and defensive features of the first-class battleships, and reducing the speed and power and coal to be carried on trial to the amount necessary, in order that the trial displace-

ment of 13,000 tons may not be exceeded. The board has agreed upon sketch plans with the following characteristics:

"Length, 375 ft.; breadth, 77 ft.; mean draught, 24 ft 6 in.; trial displacement, 13,000 tons; horse power, 10,000; trial speed, 16½ to 17 knots.

"Battery—Four 12-in. breech loading rifles; eight 8-in. breech loading rifles; ten 7-in. breech loading rifles; twelve 3-in. breech loading rifles; six 3-pounders, four 1-pounders, two 3-in. field, two machine, six automatic.

"Armor protection—Waterline belt, 9 in., tapered to 7 in. at bottom in way of machinery space, reduced at ends to 7 in., 5 in. and 4 in.; casemate and athwartship, 7 in.; main turrets, 12 in. and 8 in.; main barbettes, 10 in., 7½ in. and 6 in.; lesser turrets, 6½ in. and 6 in.; lesser barbettes, 6 in. and 4 in.; sub-barbettes, 3¾ in.; ammunition tubes, 3 in.; conning tower, 9 in.; conning tower cube, 6 in.; full coal capacity, 1,750 tons.

"It is seen that the vessel which the board has agreed upon, as compared with the Connecticut, will have, as regards armament, the same main battery excepting only a reduction of the number of 7 in. guns from twelve to ten. Owing to the reduction in length from 450 ft. to 375 ft., the secondary battery is somewhat less than the Connecticut's, the principal differences being in the reduction from twenty to twelve 3 in. and twelve to six 3-pounder guns.

"Part of the reduction in secondary battery is due to the fact that in order to secure the heavy main battery and corresponding protection of a first-class battleship it is necessary to omit the after military mast, and to reduce the freeboard aft, as on the Maine class. It is accordingly not intended to fit these vessels as flagships. The weight given to armor protection will

PRINCIPLES GOVERNING CHEAP TRANSPORTATION.

Alfred Noble, president of the American Society of Civil Engineers, and who has been on some of the most important engineering commissions that have had to do with great waterways in this country during recent years, has a thorough knowledge of improvements on the lakes from the earliest days of navigation, and is also very well acquainted with all that pertains to the commerce of the lakes. It is not surprising, therefore, that a paper by Mr. Noble on "The Development of the Commerce of the Great Lakes," printed in full in the last issue of the Review, has been very highly spoken of. From the standpoint of brief history this paper is very valuable, but its most interesting feature is the conclusions regarding general features governing cheap transportation deduced by Mr. Noble from his study of lake navigation. As the paper was quite long and as these conclusions (the meat of the paper) will appeal to all practical lake men, they are herewith reproduced:

1.—For the cheapest water transportation there must be adequate depth in the channels, so that large ships can be used. Freight rates on iron ore from Lake Superior to Lake Erie ports were, during prosperous years, about \$2 per ton when the limiting depth was 15 ft. and less than \$1 with the present limiting depth of 19 ft.

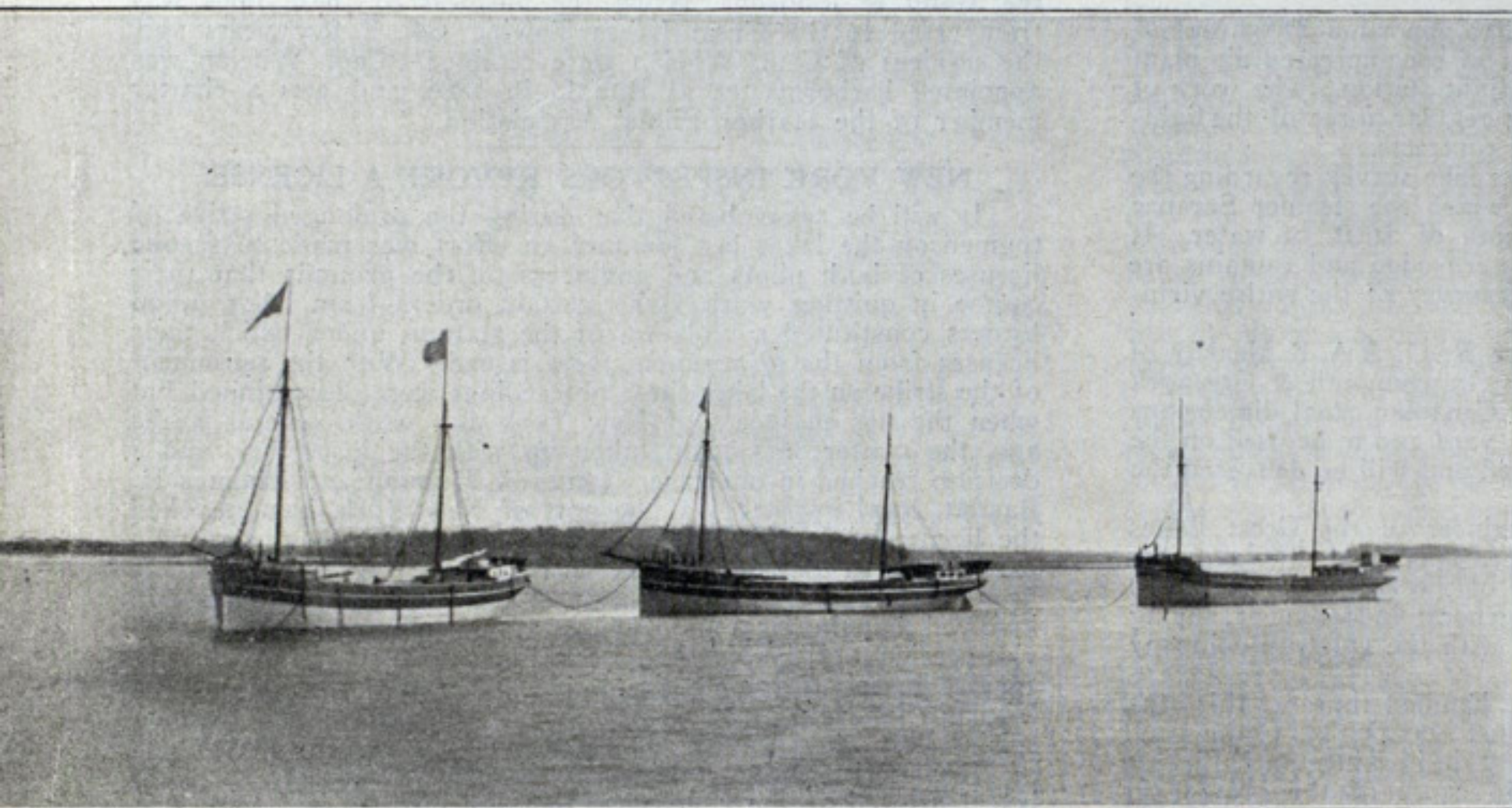
2.—There must be adequate facilities for handling cargo, so that the delay in port may be reduced to a minimum. The lake ports have probably the best facilities existing anywhere, and these are important factors in the low freight rates which obtain, notwithstanding the facts that the vessels lie up four or five months during the year, and during the season of navigation make short voyages compared with sea-going ships. Ore-carrying ships make twenty to twenty-four round trips during the season of seven to eight months, or a mileage of 32,000 to 40,000 miles. The average speeds are 10 to 12 miles per hour. During the last season a ship of somewhat higher speed made 45,340 miles.

3.—Different classes of freight require different rates of speed. Lake ships carrying package freight, some of it perishable, some of high value, run 12 to 14 miles per hour, but for those carrying ore a speed of 10 to 12 miles has been found more economical, conforming closely to the usual speed of tramp ships on salt water.

4.—Transshipment must be avoided as far as possible. The Erie canal, with its 7-ft. navigation and transshipment to Buffalo, has shown a steadily decreasing business in the transportation of vegetable foods, and in 1900 carried only one-third as much as 1869, and only one-fifth of the amount in the maximum year, 1880. The Welland canal has barely held its own during the

same period, although its depth has been increased from 9 to 14 ft. The New York Central and Erie railroads increased their tonnage in this class of freight six times during the same period. The 14-ft. navigation of the St. Lawrence to Montreal, completing this navigation from the lakes to tide-water and to sea-going ships, has been opened too recently to predict its consequences safely. It still lacks the necessary terminal facilities at Montreal, but neither this lack, nor the hazardous navigation of the lower St. Lawrence from Montreal to the Atlantic, has prevented a great increase in the receipts of grain at Montreal by rail.

5.—The prime requisite, after all, for cheap transportation is the existence of great natural resources in the tributary districts. So much misleading discussion of the benefits of water routes has been indulged in, in recent years; such broad inferences have been drawn from the traffic through the St. Mary's Falls canals as to results to be expected from the opening of other waterways, that it seems necessary to state this truism seriously. The freight tonnage through these canals consists almost entirely of a few articles; first of these is iron ore, which in 1902 was 67 per cent. of the total; next is coal, 13 per cent.; then flour and grain, 10 per cent.; then lumber, 6 per cent.; these four articles making 96 per cent. of the total. In the natural course of events the iron ore and lumber will be exhausted; but for their accidental and temporary existence, the traffic would not be more than 27 per cent. of its present amount; and doubtless even less than this because the development of these two articles has powerfully promoted the development of others. The lumber shipments will soon diminish and before many years will practically cease. Ore shipments will reach a much higher amount than the present before the decline, which is inevitable, sets in. In the meantime the shipments of coal and of agricultural and manufactured products will increase, and, possibly, after the exhaustion of the ores the traffic may remain as large



APACITY 3,500,000 FT. ON 12½ FT. DRAUGHT.

where they were overhauled last winter. All class A1. They are kept in the best of repair and are considered a fine lumber tow.

be 3,377 tons, or 25.9 per cent. of the trial displacement, as against 3,992 tons and 24.9 per cent. for the Connecticut.

"The horse power of the main engines will be 10,000, as against 16,500. The board is of the opinion that in working out the final designs this power will provide a maximum trial speed of 17 knots. Although the full coal capacity will be about 1,750 tons, as against 2,200 in the case of the Connecticut, its endurance at 10 knots is estimated at about 5,750 knots, as against about 5,300 for the Connecticut, at 10 knots under ordinary conditions. The board recommends that the bureau be directed to proceed with the detail plans of the vessels outlined above, to be used by the board in preparing the circular defining their chief characteristics."

This report was signed by Admiral O'Neil, chief of the bureau of ordnance, and Rear Admiral Bowles, chief of the bureau of construction and repair. In an independent report Rear Admiral Melville, chief of the bureau of steam engineering, said:

"While these vessels will undoubtedly be quite efficient, they would, in my opinion, be very much more so if given more speed, since I do not consider that a very heavy battery, comparatively low speed and small coal capacity with only nine inches of side armor makes the best possible combination. The displacement being limited to 13,000 tons makes it difficult, if not impossible, to produce a thoroughly satisfactory and up-to-date battleship."

The first steamer ever built at Snohomish, Wash., was launched there on June 9. She was named Garden City by Miss Nellie Bergman, daughter of the owner and builder. She will ply between Snohomish and Everett on the Snohomish river. The Garden City's dimensions are: Length, 119 ft.; beam, 20 ft.; depth, 5 ft. She was designed by Allen & Ballard, naval architects and consulting engineers of Seattle, Wash.

as at present or even become much greater. However this may be, it is clear that the present development is due to a combination of agricultural and mineral resources not found anywhere else in the world, and to a spirit of daring enterprise and restless energy hardly paralleled in the history of industrial effort.

AROUND THE GREAT LAKES.

A change of masters occurred on the steamer Parks Foster a few days ago. Capt. David Wilson, formerly of the steamer Topeka, will succeed Capt. James Wadde.

Com'dr Young of the ninth lighthouse district is forming an eligible list from which to fill vacancies for assistant keepers of lighthouses. Applications must be filed before July 11.

The first sign of the ill-fated steamer Bannockburn, which with her crew sank last fall on Lake Superior, is an oar and life preserver which were picked up 65 miles east of Caribou island.

To the steamer John Lambert fell the honor of opening the new line between Chicago and Quebec. She took 80,000 bu. of grain from Chicago and will transfer it to the steamship Southwark at Quebec. The shippers of this initial cargo are Bartlett, Frazier & Co.

It has been definitely decided that the steamer Iroquois, last year a Lake Superior craft, will this season run between Buffalo and Erie for the Buffalo & Erie Transportation Co. The Iroquois' sister ship, the Chippewa, will ply between Mackinaw City and Sault Ste. Marie.

After several attempts surveyors have located the wreck of the tug Gillen, which was sunk by the steamer Mauna Loa. Vessel men are relieved to learn that the wreck does not menace navigation. It is 34 ft. under water, 1,800 ft. from the end of the pier at Superior entry.

The lighthouse board has decided to apportion \$7,350 out of the general fund for the establishment of a compressed air plant with automatic siren at Death's Door light station. The work of installing the plant will be done by the regular force of the lighthouse service and not through private contracts.

Warning is given by officials of the lake survey regarding the reef near Racine, Lake Michigan, on which the steamer Saranac struck last April. The reef has a depth of 21 ft. of water. It has been marked by a buoy on its eastern edge and captains are warned to stay outside the buoy. A resurvey of the entire vicinity will be made.

It is only about nine weeks since R. O. & A. B. Mackay of Hamilton, Ont., gave an order to the Grangemouth & Greenock Dock Yard Co. for a steel steamer of Canadian canal dimensions to be built at the Greenock (Scotland) yard and to be used on the great lakes. The vessel is largely plated and will be delivered the first week of August.

Capt. Thomas Johnson, chief engineer of the Great Lakes Towing Co. on Lake Michigan, has been appointed Chicago manager of the company, taking the place of the late Capt. James R. Sinclair. The selection meets with general indorsement among marine men. Capt. Johnson has been with the Dunham company for over twenty years.

Three elevators at Kingston have handled thus far this season about 5,000,000 bu. of grain as against 2,000,000 bu. to the same date last year. Six large vessels with grain in Kingston harbor at one time is unusual. A contributing cause of the growth in traffic is the abolition of Canadian canal tolls. A demand has become manifest for additional elevator facilities.

Charles Warwick, chief engineer of the steamer Mary, is to be rewarded for his bravery when the steamer lost her propeller in Lake Michigan last Thursday. As soon as the propeller fell the engines raced and steam filled the fire hold. Engineer Warwick ran among the whirling parts and turned off the steam at considerable personal risk. The fifty passengers are now making up a purse for him.

The steamer Inter Ocean was sold at Buffalo last week for \$1,350. Five persons were interested in the purchase. They are Cornelius S. Mahoney, one-fourth; Michael Connelly, one-fourth; Daniel Mahoney, one-sixth, and John T. Mahoney, one-sixth. The sale of the vessel was the result of a libel brought by several members of the crew for back wages. Judge Hazel ordered the vessel sold at public auction.

Mr. Cornelius Shields, general manager of the Consolidated Lake Superior Co., is authority for the statement that the steel plant of the Algoma Steel Co. at the Sault will be in operation by July 5, and that the ferro-nickel plant will be in operation by August 15. The two pulp mills are working to their utmost capacity. The Algoma Central Railway is graded for 200 miles and the steel is down for 100 miles.

Capt. C. E. Copeland of the Steel Corporation Steamer Marina has decided to make a short stay ashore and several changes in commands are therefore announced. Capt. A. W. Burrows of the steamer J. B. Trevor will take the place of Capt. Copeland. Capt. C. H. Noble of the barge 137 will sail the Trevor. H. A. Kelley, mate of the steamer Howard L. Shaw, will take command of the 137. Capt. George Bryce will go as mate of the Shaw.

In a fog on Lake Erie Tuesday morning the tug Cheney was overturned and sunk by the steamer Chemung seven miles from Buffalo harbor. The following were drowned: John Whelan, captain; Edward Dugan, fireman; Andrew Shafer, steward. The Cheney was sent up the lake to tow the Chemung into port. A heavy sea was running, and a thick fog lay over the surface of the water. The tug ran too close to the incoming steamer and was struck by her bows. The tug was instantly overturned, and went down without a second's warning to the crew.

The Columbia Iron Works launched at its St. Clair yard last Saturday the steamer John O. Howard for the George Hall Coal Co. of Ogdensburg. Miss Florence Howard of Port Huron named the vessel. The new steamer is 241 ft. over all, 224 ft. keel, 39 ft. beam and 16 ft. molded depth. She is provided with six hatches, 12 by 14 ft., and is especially designed to handle coal expeditiously. She is equipped with a triple-expansion engine, 16, 26 and 44 in. cylinder diameters, with 36 in. stroke, supplied with steam from two Scotch boilers, 10½ ft. in diameter and 12 ft. long. She is intended for the coal trade between Ogdensburg and Charlotte on Lake Ontario. The steamer just a little shorter than this one, which was launched some time ago and is known as the Prindiville boat, will be ready for service shortly. The Columbia works, alike to all new concerns, has encountered great difficulties on the score of delivery of material, and the two very large freighters to be built for J. C. Gilchrist of Cleveland are therefore very much delayed, but it is expected they will go along rapidly from this time on.

The body of Capt. John Whelan, drowned when the tug Cheney was rolled over by the steamer Chemung, 7 miles from Buffalo, on Tuesday, was found on the Canadian shore opposite Buffalo. Capt. Whelan was one of the oldest and best known captains on the lakes. As man and boy he had sailed the lakes from Buffalo to Duluth for more than forty years. He was in his sixty-first year, having been born in Amsterdam, N. Y., in 1842. His first experience on the water was as a ferry boy on Buffalo river, when he was fifteen years old. He was regarded as one of the best and most capable masters on the lakes and had command of many fine vessels, including the C. M. Richmond, Eliza A. Mowry and Matt Sherman. As a tug captain he served fourteen years with the Maytham line and eight with the Hand & Johnson. When the business of these lines was transferred to the Great Lakes Towing Co., a few years ago, the services of Capt. Whelan were retained. Capt. Whelan was appointed harbor master at Buffalo in 1886, and was a charter member of the Harbor Pilots' Association.

NEW YORK INSPECTORS REVOKE A LICENSE.

It will be remembered that during the prolonged strike of tugmen on the lakes last summer an effort was made to revoke licenses of both pilots and engineers on the grounds that their course in quitting work under certain orders from labor union leaders constituted a violation of the statutes under which their licenses from the government were issued. With the settlement of the strike on the lakes these proceedings were discontinued, but when the tug engineers of New York quit work, several weeks ago, the matter was again taken up with the inspectors, and a decision reached in one case. James A. Dumont and Thomas H. Barrett, local inspectors at the port of New York, have revoked the license of Joseph Cornell, one of the marine engineers who participated in the recent strike on tugs there, on the ground that he refused to work. The decision of the inspectors is prolix and involved, but the facts and findings are as follows: John Russell, vice-president of the Newton Creek Towing Co., preferred charges against Joseph Cornell, a licensed engineer employed on the tug Vigilant, for refusing to serve in his official capacity and for conspiring with other licensed officers to hinder commerce in the port of New York. After considering the evidence offered the local board arrived at the conclusion that the charges had been sustained and revoked Cornell's license. It appears that an unsigned printed document was sent to the Newton Creek Towing Co. purporting to come from Marine Engineers' Beneficial Association No. 33, containing a schedule of wages and conditions of service to take effect May 1, 1903. Mr. Cornell demanded the wages contained in the schedule and when they were refused declined to serve. His reason for refusing to serve was couched in the following words: "Because my employers have refused to pay the union wages of the M. E. B. A."

The inspectors base their authority to revoke the license upon section 4449 of the revised statutes, which reads as follows:

"If any licensed engineer shall, to the hindrance of commerce, wrongfully and unreasonably refuse to serve in his official capacity on any steamer, as authorized by the terms of his certificate of license, or shall fail to deliver to the applicant for such service at the time of such refusal, if the same shall be demanded, a statement in writing assigning good and sufficient reasons therefor, or if any pilot or engineer shall refuse to admit to the pilot house or engine room any person whom the master or owner of the vessel may desire to place there for the purpose of learning the profession, his license shall be revoked."

It is the opinion of the local board that the action of the marine engineers' association constituted a violation of this provision in that it did not give the owners an opportunity to prove that the schedule of wages demanded was excessive or to allow time for modification. In other words an imperative schedule was submitted with the alternative that, if not accepted, the vessels were to be tied up. And tied up they were. The local board holds that Mr. Cornell, in obeying the behest of the association, ignored his oath to the government made when taking out his license "that he would faithfully and honestly, without concealment or reservation, perform all the duties required by law" while holding the license of marine engineer.

The French Transatlantic Co. has ordered from the St. Nazaire Ship Building Co. a new steamer for the Havre-New York service. She will be named La Provence and will be the largest and fastest yet built for the French company, considerably exceeding La Lorraine and La Savoie in size and speed.

MEETING OF SUPERVISING INSPECTORS.

Washington, D. C., June 24.—Many radical changes in the rules and regulations governing steamboat inspection will be recommended to the secretary of the treasury by the board of supervising inspectors of steam vessels which is still in session in Washington. The past week, the third week of the meeting, was entirely taken up in the drawing and consideration of substitutes for Rules 3, 5, 7 and 8. Rule 5, which concerns licenses, has reached its first reading, as has also Rule 7, concerning ferry boats, and 8, concerning excursion steam boats. The substitute for Rule 3, which concerns life-saving appliances, is in the hands of a sub-committee consisting of Messrs. Westcott of Detroit and Cotter of New Orleans. The board considers this one of the most important rules of the service. While the board is doing everything in its power to make steamboat travel safer, at the same time they are making an effort to do away with all unnecessary expense to owners. Many complaints have been made that the rules were not up to date and only resulted in large expense without increasing to any appreciable extent the degree of safety.

The matter of the revision of the statutes is in charge of Mr. Rodie of New York. He has gone over the entire code, cutting out here and adding to there and with a great deal of patience and labor has, it is believed, succeeded in arranging a code which will be entirely satisfactory to owners and manufacturers, as well as to the board, the secretary of the treasury and to congress. His report is now ready and the board's time will be taken up during the coming week with the consideration of it.

The full board is present with the exception of Mr. Birmingham, of the San Francisco district, who is considered one of the ablest members. It was expected that he would arrive here this week. By reason of the continued illness of his wife he writes that it will now be impossible for him to come. In its workings the board resembles a regular legislative body. The sessions are executive, not even clerks or stenographers being allowed in the room. Mr. Uhler, the supervising inspector-general, acts as chairman. Sub-committees are appointed, which hold meetings in the afternoons and at night, working out the changes suggested or desired. These committees report to the full board, the chairman referring their completed work to the committee on rules and regulations, of which Capt. Stone of Cleveland is chairman. This committee then reports back to the board and a committee on revision then takes the subject matter in hand and trims and polishes it. After the third reading the board takes a vote on adoption. The most conservative members of the board say that it will be impossible to complete their labors within a month, this bringing the session well into July. In discussing the work of the board, Capt. Stone of Cleveland, chairman of the important Committee on Rules and regulations, said to-day:

"This country expects, of course, to make great strides in the construction and operation of steam vessels, in the foreign trade as well as at home, and it is most necessary that in the rules and regulations governing inspection we should be entirely up to date. To accomplish this purpose the secretary of the treasury has called this special meeting of our board and we are doing all in our power not only to revise the rules and regulations but also to look into the statutes and make such recommendations to congress through the secretary as will serve to stimulate ship building in this country instead of retarding it. One of the most important matters to be considered is boiler inspection. All the most prominent manufacturers have been before the board and have given us the benefit of their ideas. Boilers which are suited to the needs of lake vessels would not serve for river or ocean-going vessels. In the great lakes we have clear water. In the rivers they must contend with mud and in the ocean the brine. All these things we are considering and will do our best to evolve rules for and regulations that will meet the several circumstances of inspection. Having been for thirty-one years engaged in lake transportation as master and owner I naturally know something of the character of boilers which should be manufactured for lake vessels and to this particular part of the work I shall give my special attention. Every year the volume of lake traffic grows greater and greater by leaps and bounds and anything which will conduce to the lessening of expense to builders and owners will of course stimulate the industry and result in good to all alike. The meetings of the board have been very harmonious notwithstanding the fact that the various members are used to command and are said to be somewhat 'bull headed' and 'set in their ways.'"

CALLS THE YACHTS "GILGUYS."

Editor Marine Review:—A great many persons interested in shipping and ship building are asking the question: Of what service is the international yacht races for the America's cup? That is, do these races of the present day render any service to marine interests in the way of giving ship and yacht designers and builders new ideas as to models that will aid them in designing and building sea-going vessels on improved lines, calculated to increase their speed and efficiency? The general opinion as far as I can learn from those capable of judging is that the yachts which are pitted against each other in the international races of the present day are nondescripts; "mere contraptions that would last about as long in a rough sea as a grain of gunpowder would in hades," as one salt put it.

"Why, look at the things!" said an ex-naval officer when asked his opinion as to the value of Shamrock III and Reliance as educators in ship building. "They are simply skimming dishes. Have to be towed across the ocean, are the most unseaworthy things in the shape of boat ever built; so shallow that there is no

hold to them. Why even the crew have no quarters on board and cannot sleep there. No use to ask what service they render to marine interests. They render none whatever. They are simply a long, shallow contraption with a long fin hung to the center of the keel to keep them from capsizing in an ordinary breeze. They are simply racing machines. They are called yachts, but that is a misnomer, they are not yachts; they are—well the only name that fits them is 'gilguys.' A 'gilguy' is the sailor's name for anything he does not know the name of, or any makeshift affair, and that suits these so-called yachts. It is simply imposing on human credulity to name them yachts. Now when the America, back in 1851 won the cup from the Aurora and the fleet of British yachts it was a contest between yachts, real sea-going yachts, that did not have to be towed everywhere and constantly watched over like a sick baby. Then there was something more to these international yacht races than gamblers' sport or an advertisement for a 'gilguy's' owner. Up to and including the race between the Mayflower and Galatea in September, 1886, these races were between real, serviceable craft, and right here I want to tell you the Galatea came precious near winning that race. She won the first heat and only lost the other two by a few seconds. Then came the Volunteer, built on the new-fangled idea, which beat the Thistle in 1887. Then the Britishers, with just cause, began terming our so-called yachts 'skimming dishes.' In 1893 our Vigilant defeated their Valkyrie and in 1895 the Defender held the cup against the Valkyrie III, and in October, 1899, our Columbia won from the first Shamrock. This was a test of speed between 'gilguys,' as the Britishers had taken the cue from us and gone in for skimming dishes too. In the last race our Constitution beat their Shamrock II, and now we are to have the trophy contested for by the 'gilguys' Reliance and Shamrock III. If the Reliance wins then our press will probably do a lot of crowing about our superiority in yacht designing and building, while the truth of the matter is neither one of them are yachts, and as their kind has not yet been classified by the authorities they are, let me repeat, simply 'gilguys.' In the nature of things the Reliance should win, as the Shamrock was placed at the disadvantage of having to be towed across the ocean, therefore making it necessary to build her hull, if it can be designated by that name, heavier and stronger than otherwise required. That, you see, gives the builder of the Reliance the advantage of making his boat lighter, and it should win. Of course you will understand neither one of them would dare go out in a spanking breeze, oh no! Must have a nice gentle zephyr that won't cause them to turn turtle."

"Why, do you know," went on the ex-naval officer, "those things are so frail that one of them after winning the international race was so sprung and seams so opened that it was necessary to keep constantly bailing her out in order to keep her afloat as she was towed home, and that another was taken to dry dock between each sailing of the race and overhauled by hammering out buckles and patching up sprung seams? Such things an aid to ship and yacht designers and builders? I should say not! It makes me seasick when they call them yachts."

"They are simply 'gilguys'" was the expression again repeated, and as the ex-defender of old glory on the high seas turned away his face wore a much more eloquent expression of his disgust than mere words could convey, while a depreciating wave of his hand was easily interpreted as despairingly exclaiming, "Go away! I'm through! Words fail to express my feelings!"

Other mariners and yacht and ship builders, when approached on the subject, voiced the same opinion, being strong in their expressions of disapproval of "racing shingles," as one old salt put it, "and calling it a yacht race." "But then," he continued after a little reflection, "I suppose it amuses some fellows who think they have no better use for their time and money, and the rest of us will have to stand it, providing we can't get away to the woods where we won't hear of it." G. W. R.

STEEL RAILS TO REMAIN AT \$28.

It was officially announced on Friday last that the United States Steel Corporation's price schedule for finished steel products for delivery in 1904 will be the same as the current schedule. This means that steel rails, now selling at \$28 per ton, will remain at that price. Mr. E. H. Gary, chairman of the board of directors, gave out the following statement:

"The price of steel rails for the year 1904 has been fixed at \$28, the price which has obtained during the last three years. As the full capacity of all the mills for the next seven or eight months has been sold, many of the leading railroad companies have expressed a desire to have the price of rails established for next season, and action has been taken a little earlier than usual. Upward of 250,000 tons for 1904 have already been booked, and inquiries for a large additional tonnage have been received during the day. No change in the prices of other lines of steel has been contemplated."

An order has just been booked by the Duluth Stoker Co., Duluth, Minn., with the American Steel & Wire Co. for eight Duluth stokers of 320 H. P. each. The American Steel & Wire Co. also has an option on fourteen more of these stokers of the same size, which they will very probably close. It is the intention of the Duluth company to manufacture these stokers in Chicago. At present they have stoker installations under way at Detroit, South Chicago, Cleveland, Madison, Me., and West Superior, Wis.

HOW TO NAME OUR WARSHIPS.

By Commander Seaton Schreder.

There is talk of changing the laws regarding the naming of our ships. It is to be hoped that names may be authorized which will be harbingers of cheer and of victory. Projecting our glance into this subject only far enough back to begin with the creation of our new navy, the first misnomer that we meet with is the Philadelphia. The explanation of that slip is easy to find. When the policy of our lawgivers first veered in a substantial manner toward putting the naval organization upon a modern basis, we were entering upon a new field. The construction of steel men-of-war was a new industry: there was doubt in the minds of many regarding the ability of either designers or builders to produce what we are now so proud of. To use two expressions which were imported at that interesting time and have since been accepted in general use, the personnel of the navy was believed to be all it should be—but the material? A limited number of iron vessels for the merchant service had been built in this country. Could the steel plates and frames be produced? And if produced, could they be skilfully worked into the complex structure of an armed and armored fighting ship? The reply was found in the action of congress which passed laws prohibiting the importation of any article or material for use in building the ships, guns, and armor for which money was voted. To that wise policy we now owe busy ship yards, and the finest armor-producing plants and the finest gun factory in the world. All attention, all interest, was centered upon construction, the mechanical feature of the problem. As evidence of the acknowledged importance of that question, it is interesting to note that in a congress which, by this beneficent legislation, thus paved the way to the creation of such vast industries, the dominant party was the one which, by precept and example, had been, was then, and is now committed to bitter opposition to everything which smacks of protection. No wonder is it then that, in the gratification of our first successes, sight was lost of the personnel and of the military proprieties, and that one of the earliest steel warships was named after the city in which was located the most prominent ship building yard, the one from which she was launched. In vain could one exclaim that a Philadelphia had previously existed on the navy list and had met her death in war.

It is true that, after her capture, the destruction of that ship was accomplished at the hands of our own people, and the account of the exploit fills a bright page. It was in October, 1803. As an incident of the blockade of Tripoli, the Philadelphia was chasing a corsair and, not having good charts, was deceived into shoal water and struck upon a reef. Everything was done that a seaman's skill could suggest to get her off, but she had run up so high as to heel over until no guns could be brought to bear upon the pirates, who immediately swarmed to the attack. So the gallant Bainbridge flooded the magazines, bored holes in the bottom, disabled the pumps and then hauled down the flag. A strong northerly wind two days later piled the water up so high that the corsairs were able to haul her off and take her into an anchorage under the Pacha's castle. To prevent her being used against our own fleet, Stephen Decatur was permitted to go in, with a volunteer crew, in a captured ketch, afterward named the Intrepid, to destroy her. During the night of Feb. 16, 1804, they boldly sailed in, got alongside, boarded, and, after a desperate hand-to-hand fight, cleared the decks, set fire to her in several places and returned to sea lighted by the blaze of the burning hulk. This heroic incident should be kept alive by always having an Intrepid in the service. Some years ago a premature torpedo vessel was built and called the Intrepid, but the name has since ceased to appear in the register.

The present Philadelphia is certainly a misnomer—in conception, if not in fact, as the history of the old frigate played no part in the selection of the name. At the same time, the example set us by those who were so brave in that good ship's defence and in her final destruction is most inspiring, and, so far as the history of the incident is concerned, no harm could come from reviving her name. In a more recent case, the Chesapeake, the same consolation does not exist, as she remained in the hands of her captors, and her early career served but to emphasize the "deep damnation of her takin' off." At the launch and baptism of this gunboat, intended for service as a practice ship at the naval academy, the most prominent thought, probably, was of the handsome bay upon which the academy fronts. There had been successively detailed for this service a Bancroft (after the naval secretary in office at the time of founding the school) and an Annapolis, each of which had in turn proved unsuited to the work. As an alternative the name of Severn was, no doubt, considered also, and would be quite appropriate, as recalling the beautiful river which flows past the academy grounds, on whose waters the midshipmen get their professional training and have their aquatic sports.

The first Chesapeake furnished an almost unique instance of a United States ship having to lower her flag after a fight with a single adversary of equal strength. This is in no wise a reproach to the heroic Lawrence, whose dying words, "Don't give up the ship," were in themselves an anthem of devotion which, three months later, was emblazoned at the masthead of the brig which bore his name and cheered Perry's fleet to victory on Lake Erie. When the ill-fated frigate sailed out from Boston in June, 1813, to meet her challenger, it was with an almost mutinous crew, just assembled, many of them foreigners and without training.

Pitted against Capt. Broke's superbly drilled ship, the result

could not long remain in doubt, and in but few minutes after the first gun was fired the American flag was hauled down by the Shannon's boarders. Personal courage of the most brilliant order had been displayed on both sides, Capt. Broke setting a most conspicuous and wellnigh fatal example, and the estimation in which our captain had been held by the enemy was shown in the manner of reception accorded to the Chesapeake when towed into Halifax by her captor. When Lawrence's body was taken ashore in a twenty-oared barge, it was met by a regiment of British troops, and it was carried away in its coffin by six veteran British naval officers. We may well revere that gallant seaman's memory; well was it bestowed upon Perry's flagship; well might it again be bestowed upon a modern namesake built of steel. But his ship was taken from us. None of the associations which cluster about that unfortunate craft is such as to foster the generous enthusiasm which should be felt in our ships. Six years before her death struggle, she had been attacked, in a time of profound peace, by the Leopard to obtain possession of four men who were claimed to be deserters from the British navy, whom Commodore Barron had refused to give up. The action lasted less than a quarter of an hour, the Chesapeake having sailed from port in a condition of such unpreparedness that it was only as the flag was coming down that Lieut. Allen managed to fire one gun by means of a coal carried from the galley fire. The Leopard took off the men; the Chesapeake returned to port; Barron was suspended for five years, and did not return to active duty when he could have done so, in 1812, and he finally killed, in a duel, the immortal Decatur, upon whom had devolved the thankless duty of passing judgment upon his conduct.

Laying aside feelings which are natural in one whose first thought is for the profession and service with which he is identified, but which may seem overstrained to those who can regard the matter from a calmer distance, let us see what other navies do. Take Great Britain as being always first in matters of the sea. Among her battleships and cruisers are found a number of names illustrious in her naval history and thus kept to the fore. Prominent among them may be cited the Nelson, Hawke, Benbow, Anson, Camperdown, Rodney, Howe, Collingwood. Any officer, young or old, upon joining, for instance the Collingwood, would probably learn, if not already familiar with them, the doings of that great seaman and recall his exclamation when so lucky as to be the first to engage the enemy at Trafalgar, "What would not Nelson give to be in our place!" at almost the same moment that Nelson was exclaiming on the beauty of his subordinate's grand attack. When the time should come, would not each vow that the name should remain honored? That list of battleships also includes the Nile and Trafalgar, while a number bear the names of ships captured. Among their cruisers is also the Aboukir, and it is pleasant to see that there is a Goliath, successor to Nelson's leading ship in that action, whose captain, Foley, without orders, took the bold initiative of leading the column inshore of the French fleet, helplessly anchored, thus doubling upon them in position and assuring a victory which would probably have been achieved in any event, but by that masterstroke was made far more crushingly complete than if the first simple plan of battle had been followed.

The English appear to revive in this way the names of only flag officers who commanded epoch-making fleets, while in the French service the desire to perpetuate all honorable names is remarkably illustrated in the long list of warships bearing them. Among the battleships are the Suffren, Jaureguibery, Baudin, Duperre, Courbet, while the cruisers include scores of names of which any service could be proud. Admiral Courbet had the distinction of conducting in China, in 1884, operations of greater magnitude than any that had been carried on since our civil war, and have been exceeded since only by those of Admiral Sampson.

In our short history, we are not so rich as older countries in history-producing events, yet, reflecting upon the enthusiasm evoked in England's fleet by the memories of the Nile, Trafalgar and Aboukir bay, we would do well to evoke similar enthusiasm by immortalizing the stirring incidents of Lake Erie, Lake Champlain, Manila bay and Santiago, and, in the fullness of time, of Dewey and of Sampson. The destructive forces employed in the two first mentioned battles were vastly inferior to those wielded by the commanders in the recent war, but it is proper to direct attention to the important results achieved, as well as to the magnificent seamanship and courage by which they were won. A contemplated invasion of the states down the line of the Hudson would have been made possible only by the control of Lake Champlain; and sloops, brigs and frigates were hurriedly built and armed by both sides to obtain control of it. Macdonough anchored his ships with consummate skill in Plattsburg bay, taking clever advantage of the lay of the land and direction of the prevailing winds, with spring and stern anchors all ready—which precaution saved the day. On Sunday, Sept. 11, 1814, Capt. Downie brought his squadron to the attack and skilfully and gallantly commenced the action in which he was killed, but in less than three hours the last flag of his command came down, and the threatened invasion was checked. The circumstances of this engagement are remarkable, also, in that both the other prominent battles in which one fleet was at anchor (Aboukir and Manila), the results were exactly reversed. The attacking forces under Nelson and Dewey were completely victorious, while it was Macdonough's anchored vessels that annihilated those that attacked under way. This is a pointed tribute to his forethought, which made it impossible for Capt. Downie to repeat the maneu-

ver so quickly conceived and so brilliantly executed by Capt. Foley of the Goliath.

The French do not seem to have approved the plan of retaining the names of captures, although at various times, more especially in the seventeenth and in the early part of the eighteenth century, they came into possession of enough ships to furnish names for a powerful fleet. It is also worthy of note that while not so very long ago the president was still to be seen laid up in the Sheerness dock yard, neither her name nor that of any ship captured from us is now borne upon the British navy list. It may be that in these days of sudden national flirtations and far-sighted overtures of friendship, it is well to do away with all sources of friction with any who may possibly, in the future, be useful, albeit interested, sympathizers.

While the Chesapeake is not on the British navy list, the Shannon is, and presumably always will be; then, while dropping the Macedonian, why should not we always have a United States? The day may also come when we will find it as easy to give up the Isla de Luzon and Reina Mercedes as the Guerriere and Cyane. Certainly to observe the kindly rule toward one nation and not to another must exaggerate the humiliation of that other. Our friendly feelings for France, and hers for us, are in no danger of being ruffled by any such sentimental circumstances, because, of the ships captured from her during the short difficulties that existed, the Croyable, taken in the summer of 1798, was recaptured in the same year; the Insurgente was lost at sea, and all other national cruisers were returned upon the conclusion of a treaty of peace in 1801.

But it would, indeed, be a querulous and exacting friend who could take umbrage at a nation's honoring the spirits who had moved their ships. And, whether or no, that certainly, should we do, "*pour encourager les autres*"—not in the humor of fine irony which dictated Voltaire's celebrated *mot* anent the execution of Admiral Byng, nor yet to exalt "the strenuous life," but simply to blaze the way for future endeavor. This honoring, with its corollary of inspiration, need not be refused to those who, after doing all that mortal man could do, may issue from the struggle in the unfortunate relation of the vanquished. In some defeats there has been more honor than in some victories. Our transatlantic cousins have realized this. Byng, who was brave, but guilty of a serious error of judgment, was shot after Minorca, for "not doing his utmost," but the indomitable Pearson, who, through no fault of his own, survived the capture of his ship, the Serapis, was knighted; and he deserved it—although the circumstance did give to John Paul Jones the opportunity to say that if he were so fortunate as to fall in with him again he would make a lord of him. Decatur, who commanded the President in January, 1815, when that frigate was overtaken and captured by a British blockading squadron, is not on account of that one whit less entitled to every tribute of reverence that a proud service can bestow. That misfortune could not outweigh the glorious achievements of the Intrepid and United States. Capt. Sennez, of the French ship Berceau, when brought to action by the United States ship Boston, a much heavier and more powerful ship, fought for twenty-two hours, off and on, before surrendering. He, certainly, deserves a niche in the temple. To come down to a more recent period, whatever may be the ministerial opinion in Spain, the naval world at large will not refuse to render homage to the gallant admiral who, with prescient grief in his heart, sailed from home with his fleet when ordered, and, later, as ordered, steamed forth from Santiago to meet his doom. Our late adversaries would not go far astray in building a battleship of the first class and naming her Cervera.

Given a fleet, and given an enemy, history shows what may be expected of American seamen, but it behooves us none the less to foster the pride which incites to valor, and combine reward with incentive. I realize at the same time that the navy belongs not alone to those who constitute it, but to the whole country at large which takes such appreciative interest in it. Far be it from me to suggest keeping new names out. But the interest of individual communities such as states and cities may be held at the same time that the personnel of the service may feel and see some tangible effect of their prowess; and there may be conveyed to men of other fleets, when we meet, the assurance that the history of our past is not lacking to spur us on in the future. No country is so rich in heroes as to afford to neglect those who have gone.

The present laws of congress provide that steamships of the first class, and monitors of any class, shall be named after states; other vessels of the second class after rivers and principal cities; and the third class "as the president directs." The only practicable mode of classification is by displacement, and, in accordance with that, ships of more than 8,000 tons are put in the register as of the first class; those between 8,000 and 4,000 tons, second rates; those between 4,000 and 1,000 tons, third rates; and all below 1,000 tons fourth rates. Exceptions to this general rule are made in the case of supply ships and other auxiliary vessels, as they have no bearing upon the general question, either of rating or of names. Iris, Rainbow, Mist, etc., are good names for distilling ships; colliers could be called Diamond, Pearl, Ruby and the like. Should we follow the plan adopted abroad and transfer the transport service to the navy, names should be selected from the bright galaxy of our army lists, past and present.

At present we have in commission twelve ships of the first class and two monitors, named after states, besides twenty-five first rates and two more monitors building or appropriated for,

making a total of forty-one. As there are only forty-five states in the union, activity with statehood bills will scarcely keep us supplied with names through many more congresses. It seems most happily appropriate that the battleships, whose first natural duty will keep them mostly in home waters, should be called after the states whose shores they will protect from insult, but the monitors are comparatively small, and it seems expedient to let the names follow the individual ratings, so that all first rates shall follow one system, all second rates another, and so on without regard to types. We have cruisers now of 9,000 tons and will soon have them of 14,000, but the distinctiveness of battleships and of armored cruisers will gradually become less and less marked as the defensive power of the latter becomes increased, and (alas!) the offensive power of the former perhaps reduced. In carrying out the provision that third rates should be named "as the president directs," the policy expressed at first was that their names should commemorate events connected with the nation's history, but naval events were not considered, and for the first three built Yorktown, Concord and Bennington were thus selected. By a curious coincidence, those three fine little ships, reminding us of victories over British arms, were designed after a British model, as was not unnatural in the early days of our naval renaissance. Since that time the object first conceived has been lost sight of, and names have been bestowed simply to represent upon the high seas cities located in different geographical and political sections of the country. It is not understood that there was thought of Jackson's brilliant operations in naming the New Orleans, recently bought in England; nor was the Detroit baptized in honor of the ship captured by Perry on Lake Erie. In fact, no modern ship in the navy today appears to be associated with any event, man or vessel connected with our naval history, and there are only a few old gunboats left to recall the honorable past.

It is true that we have a Farragut—a torpedo boat named after the great flag officer, whose most famous order was "Damn the torpedoes, go ahead." Another of those vicious little craft is the Ericsson, after the renowned inventor, from whose busy brain sprang the revolving turret, the protoplasmic cell of the torpedo boat's dearest foe, the battleship. Torpedo boats do not enter here—we can probably find names enough for any number that may be built—but there will be, in course of time, a material difference in the importance of their sponsors' services. Moreover, it is doubtful if Farragut would have cared to have a torpedo boat as bearer of his name, nor does the honor appear commensurate. I think in this matter the humor of most officers chimes with the practice abroad, of restricting names to the larger class of these craft, usually known as torpedo-boat destroyers. Cushing should perhaps head the list, though Somers should certainly not be forgotten—he who, with his entire crew, was blown to atoms in the fireship (the forerunner of the torpedo boat) which he took in among the shipping of the Barbary pirates.

In dealing with a subject which appeals to one's loftiest feelings and enthusiasm, as in dealing with any subject, one must curb impatience and consider the question with deliberation. The various states, undoubtedly, do take interest in their godchildren—each one wants the biggest that there is, and, naturally, the smaller the state the bigger the ship. (The Connecticut is a 16,000-ton battleship.) We in the navy are glad to note the interest displayed, and I think the propriety of thus exciting and maintaining it is not only conceded but asserted. The vessels naturally indicated for this category are the big ships; call them battleships or armored cruisers, they will find their true tactical place in the line of battle. Like the individual states, each ship is a small sovereignty, whose success will depend largely upon the efficiency of its personnel, whose independence is wisely limited by the central governing hand of the flag officer, whose efficient co-operation at the crucial moment is a measure alike of the capacity of the commander-in-chief and the loyal endeavor of the captain. To meet the difficulty that there will soon be more ships than names available, it is suggested that the tonnage limit between first and second rates be raised to 10,000 tons displacement, by which arrangement we would now have ten ships in commission and twenty-two building, to be named after states, leaving a fair margin for the future.

For ships other than first rates, what suggestions are there? Rivers, cities, events. Events make cities, men make events. Let the events and their creators come next in the scale. The states and their stately protectors will guard themselves and the coast; the ships that go abroad and mingle with the ships of other nations should carry abroad our history; the Champlain and Erie should lie in port with the Aboukir and Sinope; the Farragut and Dewey with the Nelson and Suffren; the Sampson with the Nahkimoff; the Porter and Rowan with the De Ruitjer and Tegetthof; the Stewart, Bainbridge and Hull with the Tourville, Duguay-Trouin and Jean Bart; the Constitution and Niagara with the Shannon and Goliath. These cruisers should be among the second rates. We have now many ships of this size, and will surely have many more, but we have names enough. Let the second rates be named as "the president directs," and we will be sure of a safe initiative at the hands of the illustrious author of the "Naval War of 1812." In some navies, national ships are named also after noted persons other than those of naval prominence, frequently those of the sister arm. If we could be sure that politics could be kept out of it, this plan might be considered, but it will undoubtedly suggest itself to every one that in this case the cruisers, exclusively, should have the naval names,

to carry them with the flag to every sea. We have two more classes of ships and we have two more classes of names—rivers and principal cities. Cities are corporate, sentient beings, sympathetic and appreciative, and it is a pleasure to have associations with them (a still small voice also whispers that rivers do not bestow handsome silver services). So, by all means let us honor the next class with the names of our kind-hearted towns.

In the fourth rates we have opportunity to revive the Indian names, many of which are so pleasant-sounding, but which are rapidly being lost to sight though to memory dear. While we are a young nation, we are an old country, and the present thoughtless tendency toward destruction of old physical and social landmarks is to be deplored. We have no ancient feudal castles to look upon with admiring interest, and what few ruins are left, connected with our early history, are being sacrificed—as witness the dear old Dumpling fort on Conanicut island. The Indian names continue to have an interest, poetic if none other, and among them would be included many rivers which we threw out of consideration in the list of third rates. A few exceptions would have to be made. A Hornet and an Enterprise, bearing their own tales of introduction from their captains, Lawrence and Burrows, would not be out of place; and in any event, a Gloucester and a Petrel should always remain on that honorable list.

PHILADELPHIA TRADE NOTES.

Philadelphia, June 24.—The new refining plant of the Ajax Metal Co., fronting on Richmond street, has been put in operation. The buildings occupy an area of 100x200 ft. and are equipped with the best of machinery and apparatus. One large smelting furnace is in operation and three more furnaces, now being constructed, will be going within a month. Secretary G. H. Clamer stated to a Review representative that the company will be able to produce 100,000 lbs. of metal per day and that it has already sold over 4,000,000 lbs. of the new bearing metal, Ajax plastic bronze, used extensively by brass rolling mills. Ajax manganese bronze is now being marketed in large quantities. Its special adaptability is propeller wheels and gear wheels. The

metal is guaranteed to exceed government specifications. The Ajax Co. has issued a neat "Product Book" describing its several products, which is full of interesting and instructive information. The work of remodeling the old foundry building will soon be commenced and an additional foundry 81x151 ft. will be built. When improvements are completed the company will add fifty men to the large skilled force now employed.

J. S. L. Alexander, president of the American Brazing Co. of South Fourth street, is at Providence, R. I., closing a contract disposing of the state rights in that commonwealth to use the company's brazing metal, "Ferrofix." The company has employes at the Lehigh Valley shops at Wilkesbarre, this week, repairing fractures to cylinder rods.

The president of the Capilar Filter Co. states that since the new filter has been placed on the market they have found it impossible to supply the demand and are two weeks behind in orders. Some of the largest manufacturers in the country are now using this company's improved oil filter, and letters on file in their offices attest its usefulness, economy and satisfaction. It is especially suitable for naval and merchant vessels.

The Falls Hollow Staybolt Co., of Cuyahoga Falls, O., has opened an office in the Vanderbilt building, 132 Nassau street, New York, for the sale of the hollow and solid staybolt iron which it manufactures and which is well known to the marine and railway trade. The office is in charge of Mr. Fred F. Bennett. Mr. Bennett is well known to the railroad supply trade through his connection with the railroad press, the American Steel Casting Co. and the Chicago Pneumatic Tool Co. The argument which the manufacturers present in favor of the hollow staybolt iron is that this iron being rolled around a mandrel leaves a hole through the center of the staybolt, making the strength uniform and the bolt flexible, and that therefore no one point is weaker than another. It is claimed that the drilled hole stops at the vital point and causes the bolt to break much quicker than it would were it not drilled. The object in drilling is to detect breakage, but mechanical opinion inclines to the belief that the drilling process causes the bolts to break. But the Falls company also sells solid staybolts and will furnish them when desired.

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French Navy	-	-	-	-	-	-	-	-	-	276,460 H. P.
English Royal Navy	-	-	-	-	-	-	-	-	-	849,300 "
Russian Imperial Navy	-	-	-	-	-	-	-	-	-	193,900 "
Japanese Imperial Navy	-	-	-	-	-	-	-	-	-	122,700 "
Austrian Imperial Navy	-	-	-	-	-	-	-	-	-	32,900 "
Italian Royal Navy	-	-	-	-	-	-	-	-	-	13,500 "
Chilian Navy	-	-	-	-	-	-	-	-	-	26,500 "
Argentine Navy	-	-	-	-	-	-	-	-	-	13,000 "
The "Messageries Maritimes" Company	-	-	-	-	-	-	-	-	-	87,600 "
Chemins de fer de l'Ouest: (The French Western Railway Co.)	-	-	-	-	-	-	-	-	-	Steamships
plying between Dieppe and Newhaven	-	-	-	-	-	-	-	-	-	18,500 "
Total Horse Power of Boilers <u>in Use</u>	-	-	-	-	-	-	-	-	-	1,634,360

WORKS: Ateliers et Chantiers de l'Ermitage, at Saint-Denis (Seine), France.

TELEGRAPHIC ADDRESS: Belleville, Saint-Denis-Sur-Seine.

United Marine Mfg. & Supply Co.,

MANUFACTURERS OF AND
DEALERS IN

ELECTRICAL MATERIAL

ALBERT C. JAHL, General Manager,
100 William St., New York, U. S. A.

FOR SHIPS AND FORTIFICATIONS.

UNITED STATES SHIP BUILDING CO.'S TROUBLE.

An effort is now being made in the United States circuit court of Trenton, N. J., to appoint a receiver for the United States Ship Building Co. The suit for a receivership was precipitated by an attempt to reorganize the company by wiping out the present bondholders and making preferred stockholders out of them. The case was opened by Henry Woolman, counsel for the complainants, who offered to prove that, as a result of the secret purchase of the Bethlehem Steel Co. and its sale to the United States Ship Building Co., Charles M. Schwab had made a profit of \$30,000,000, consisting of \$10,000,000 of preferred stock, \$10,000,000 of common stock and \$10,000,000 of collateral bonds. These bonds are a lien on the Bethlehem Steel Co. and the United States Ship Building Co. The formal answer of the ship building company was read by Attorney General Robert H. McCarter representing the reorganization committee. He denied in detail the charges of mismanagement made by the complainants, and also that Lewis Nixon has conceived the plan of forming the company with a view of unloading the Crescent ship yard at an enormous profit. At the time of the purchase, according to the answer, the underlying companies had on hand contracts aggregating \$34,000,000. Denial was made of the charge that the company was unable to meet maturing obligations, but it was admitted that they could not be met by the earnings of the ship building companies alone since their purchase and that \$1,381,424

had been withdrawn from the working capital. Mr. Nixon's affidavit was a general denial of all charges. He denied that he was the promoter; denied that he had sold the Crescent ship yard for anything other than a reasonable figure; denied that he was responsible for any statements made by the Trust Company of the Republic; denied that the unloading of the Bethlehem plant was a conspiracy between him and Charles M. Schwab; and in fact denied all statements, insinuations and accusations. However, if indications count for anything the company will presently be in the hands of a receiver. Judge Kirkpatrick during the argument said that it was idle for Mr. Sheldon to come into court with 60 or 70 per cent. of the bondholders who are favorable to a reorganization. "While Mr. Sheldon may think it desirable for his scheme to go through," said Judge Kirkpatrick, "I don't see how it can be done save by default, foreclosure and sale, unless all the bondholders consent."

The Thousand Island Steamboat Co. of Kingston will receive about \$20,000 insurance for the fire damage on the steamer Empire State two weeks ago.

Mystic Shriners Imperial Council at Saratoga, N. Y., July 7-10, excursion rate, one fare for the round trip by way of the Nickel Plate road. Tickets on sale July 5 and 6, good to return July 20. Full particulars at nearest ticket office, or address E. A. Akers, C. P. & T. A., Cleveland, O. 102, July 2.

The Blue Book of American Shipping

is a marine directory and is the only one published in the United States.

It contains a correct list of names and addresses of ship builders, engine and boiler builders, vessel owners, steamship lines, repair yards, dry docks, dredging companies, marine engineers, captains of vessels and all persons identified with shipping and its allied trades.

If you are a manufacturer or dealer in products consumed by any of these, the Blue Book is the very book you want.

It will be to your advantage to subscribe to the Blue Book in advance of its publication for this reason: A classified directory of marine manufactures and supplies is compiled from among its advertisers and subscribers and this list is consulted constantly by ship builders and ship owners. Your name will be entered under suitable headings according to your products.

It is the biggest Five Dollars worth of advertising to be had anywhere.

The 1903 edition of the Blue Book is now in course of preparation, therefore promptitude is a necessity if you desire your name to be inserted in the classified directory.

The price of the Blue Book is \$5.00 and it is delivered free of carriage.

MARINE REVIEW PUBLISHING CO.,

39-41 Wade Building,

Cleveland, Ohio.

SEEN AND HEARD ON THE LOOKOUT.

Going aboard a French mail boat, the "*maitre d'equipage*," or boatswain as he would be called on an American ship, showed me a French marine journal, the "*Phare de la Loire*," in which appeared a description of Capt. Howard Blackburn's 15-ft. dory, and his intended trip across the Atlantic to Havre, Gibraltar and Marseilles, back to New Orleans and up the Mississippi to St. Louis in time for the Louisiana exposition. Incidentally it may be said that since this article appeared in the French periodical Capt. Blackburn, who became famous when he and a companion, going astray in a dory, rowed a couple of days with his hands frozen to the oars, has started on his third trip in his sloop-rigged dory. The writer of the French article claims that this is a rather foolhardy feat on account of the type of boat the ex-fisherman has selected for his purpose; an eggshell, he further says, that is only fit to sail in a fair wind, and a bale of hay would do that. The mistake made by the Frenchman, who gives an accurate description of the dory's draught and dimensions, is that he forgets that distinctly American institution, the center-board, and having seen dories on the decks of Grand-Bankers that were not provided with this so necessary adjunct to a keelless sailboat, he should remember that said dories are rowed and not sailed to the spot selected for setting trawls. Though a trip across the Atlantic in a 15-ft. boat is certainly a perilous and, let us say with the Frenchman, a foolhardy undertaking, the fact that for such a voyage a dory has been chosen does not increase the danger, and fishermen would certainly prefer a dory to a keel boat of similar size. The French bosun said that years ago he used to fish in the North sea on the Dogger-bank, and his outspoken contempt for the dory must be regarded as "*jealousy de metier*."

A few years ago one of the steamers of the Holland-America Line drifted helplessly in the Atlantic with disabled machinery, and one of the officers with four sailors manned a lifeboat to look for assistance from some steamer they might chance to fall in with. Anyone must concede that this was a veritable case of hunting a needle in a haystack, and though they happened to speak a boat and were safely returned to their own vessel, the lifeboat's sailors were unanimously of the opinion that it was more luck than wisdom which made their trip terminate successfully. Wireless telegraphy can now obviate the necessity of lifeboats being sent in cases like the one just stated, and as there appears to be a project to have a patrol in mid-ocean for the purpose of saving life and property, it is expected that in the near future the most timid landsman will consider an ocean voyage less dangerous than a promenade on his city's sidewalks. The inventor of the proposed ocean patrol, if so he may be named, calls it the International Blue Cross Ocean Life and Salvage Service, and says it is intended to do the work on the ocean that the Red Cross does in the army. It will consist of several lifeboats and store boats to patrol the Atlantic, with a regular schedule of time, so that all captains of ships may approximately be sure where the nearest lifeboat is at the time there is need for her services. As the name denotes, the service is to be international and the salvage goes to the respective governments which operate the fleet according to their shipping tonnage on the Atlantic. It must not be understood, however, that any boats of this fleet have as yet been launched, and not even the size and type of boats has been decided upon. The approval the project has met with among ship owners of several nations makes the ultimate appearance of the Blue Cross fleet at least a probability.

The mate of a German steamer, who was formerly captain and owner of a Baltic galleot, said that this type of vessel, known in its home waters as "*kofs*," would soon become extinct, because speedier ships are now ordered from ship builders. In the Baltic and the North sea these galleots used to be numerous, and a couple of years ago one of them, with a crew of five men all told, was trading on the Brazilian coast carrying sugar from Pernambuco to Porto Alegre. In these days of steamers such slow sailing ships of small carrying capacity are proving an unprofitable investment, and the "*kofs*" ultimate disappearance shall certainly not be regretted by lovers of the graceful and beautiful in naval architecture. Clog shaped so that one needed to locate the jibboom to distinguish between stem and stern; flat-bottomed, and steered with an immense tiller that extended the whole length of the poop, the galleot's only attribute to compel favorable criticism was the ease with which she weathered a gale when hove to, sailors claiming that on the deck of a galleot that was hove to under a stormtrialsail no seaboats were needed. Another peculiar feature was a topgallant yard without either foot ropes or toppinglifts, and when the yard was lowered the man furling the sail made use of the topsail yard's foot ropes. Unable to see any advantage in such a rig, it is presumed that the so-called "*flying*" topgallant sail was invented by a penurious ship owner to save the expense of toppinglifts and foot ropes. North sea and Baltic etiquette makes it incumbent upon members of crews of vessels happening to come within hail of a "*kof*" to immediately show a broom, and though this ever results in angering the latter's men an explanation of the custom was not obtained.

Quite a few of the ships that once sailed under the American flag have been bought up by foreigners, and when on the Clyde last fall I noticed one of these vessels, full-rigged, lofty, her figurehead an eagle, formerly the Ocean Express of Boston, coming in the harbor after a sixteen-days' voyage from Quebec to

Greenock. This ship is now called the Frederic, hailing from Porsgrund, and at the time of her arrival it was noticeable that along the whole length of her port side the white paint of the deck houses showed dark specks, while her starboard side appeared to have been immune from whatever caused this marring of the ex-Yankee clipper's beauty. The captain explained that the amount of lumber to be carried on deck during a winter trip across the Atlantic is regulated by law, and after taking on board as much as was allowed he concluded to make use of his spacious fore cabin to carry some more. Though carrying three suits of sails, their condition was not what might be termed copper-fastened and Lloyd-surveyed, and when shortly after leaving Quebec a place was needed for the sailmaker, with the assistance of such sailors as were not required on deck to repair the ever-recurring damages done by the northwester, the resourceful skipper added the contents of the lumber-laden cabin to the deckload. There was now, of course, more load on deck than the law allowed, and as it might be difficult to explain how freight carried in a cabin had gone overboard while the original deckload came over safe, if wet, the commander of this ship was forced to find the means for retaining it with apprehensive alacrity. A water closet on the port side under the fore-castle head was stuffed with oakum, and by pouring a mixture of tar and oil on the oakum there was at once created a veritable case of tempering the wind to the shorn lamb, or smoothing the waters for the illegally freighted ship. Tar on this occasion was added to eke out the meager supply of oil, and again referring to my former statement that the voyage to Greenock was made in sixteen days, in other words that it blew a gale from the northwest, the mystery of the speckled appearance of the port or weather side is cleared up for anyone understanding that during sixteen days Neptune scattered a tar and oil freighted spray along the decks of the one-time Boston clipper.

N. B.—when entering port the ship's fore cabin was full of lumber and the amount carried on deck did not exceed that allowed by law.

F. H.

It is noted in one of the French marine journals that the Spartiate of the British navy, equipped with Belleville water tube boilers, recently reached Hong-Kong from Portsmouth, having made the trip on 13 knots average speed, her ordinary running, with the very low coal consumption of 2,600 tons. The Amphitrite on the same trip and at the same average speed consumed 3,900 tons, while the consumption of the Blenheim, fitted with cylindrical boilers, was nearly 4,000 tons for an average speed of less than 12 knots.

National Educational Association convention, Boston, July 6 to 10, very low rates and special inducements via Nickel Plate road. Tickets on sale July 2, 3, 4 and 5, good returning July 12, subject to extension of return limit to Sept. 1, if desired. See nearest agent or address E. A. Akers, C. P. & T. A., Cleveland, O.

99, July 2.

Steam Barge for Sale.

For Sale.—Steam barge, 131 ft. keel, 25 ft. beam, 9 ft. deep. Capacity, lumber, 260 M. ft.; coal, 375 tons. Good power; can handle two or three barges. Everything pertaining to this boat is in good condition. Terms cash. Address Belknap & Phillips, Lock Box 35, St. Clair, Mich. July 16.

Towing Machine for Sale.

For Sale.—A latest type towing machine. Cost one year ago \$2,500. Placed on board ship but never used. Address for particulars James Reilly Repair & Supply Co., 229-230 West street, New York City. June 25.

U. S. Engineer office, Jones Bldg., Detroit, Mich., June 23, 1903. Sealed proposals for hire of two or three dredging plants for use in lower Lake Huron, St. Clair River and Lake, and upper Detroit River, will be received here until noon (standard time) July 23, 1903, and then publicly opened. Information furnished on application. W. H. BIXBY, Major, Engrs. July 16.

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BLOW-OFF PLUG FOR HIGH STEAM.

There is illustrated herewith the Bordo blow-off plug valve, intended for marine blow-off, especially where an easily-operated plug valve is essential when carrying high-pressure steam. The Bordo blow-off is operated with a wrench on the square of the plug. The lifting gland when adjusted is permanently fixed by a lock-nut. By turning the gland slightly to the left the plug is lifted so that it can be made to turn easily at all times. When the lock-nut is moved up, a lifting cam (which couples the packing gland to the plug) can be pulled out, and the gland is then free to be removed for repacking or recasing the plug.

The essential feature in this blow-off will be appreciated, as the wearing parts of the plug are cased and recasing is readily done when worn, making the valve practically indestructible, the construction being so simple that the operator can make the blow-off valve positively tight after the valve has been closed against pressure.

These valves have been on the market for four years, and as a blow-off for boilers and water column blow-off they have proven most effective and lasting. Mr. L. J. Bordo, 12th and Thompson streets, Philadelphia, inventor, has had many years of practical experience in this line, and is endeavoring to place before the trade a strictly high-grade blow-off valve, sure to command the respect of the marine engineers. Full particulars will be furnished upon application.

TRADE NOTES.

"Electricity in Mining" is the title of a bulletin issued by the Westinghouse Electric and Manufacturing Co. of Pittsburgh, which will be sent to anyone upon request. It is abundantly illustrated.

The Chicago Pneumatic Tool Co. has just issued two circulars devoted to their tools. Special attention is directed to the jam riveter and Boyer drill. The results obtained by these tools have been eminently gratifying. One of the most prominent ship building concerns in the country recently informed the company that on a large job which they had just completed one of their men drove 1,651 $\frac{3}{4}$ -in. rivets and 300 $\frac{7}{8}$ -in. rivets, a total of 1,951 rivets in 8½ hours, using the No. 60 long stroke riveting hammer. Both circulars will be sent to anyone upon request.

The Watson-Stillman Co. of New York has just issued an illustrated index of tools manufactured by it. The index contains seventy-two pages of illustrations and each cut represents from one to about twenty sizes of tools. A full and complete description is kept by the company in the form of loose sheets for distribution as desired. These sheets are bound

together in a neat cover, in various combinations, to suit the demands, as nearly as possible, of correspondents. So endless, in fact, is the company's output that it has been found impracticable to issue a complete bound volume. The present scheme of catalogues includes seventeen sectional catalogues, of which eleven are in print ready for issue, and six in manuscript or in bound assortments. By keeping the illustrations in loose-sheet form, with a suitable cover, such sheets as may be applicable to the purpose intended can be fastened together. This illustrated index, therefore, becomes a very valuable thing, because through it one may easily put his finger upon the tool he desires and by writing to the company obtain a complete description of it. The index is No. 65, and replaces a similar catalogue, No. 51, issued about four years ago.

The Underfeed Stoker Co. of America, with general offices in Chicago, has, since it established a Cleveland office at No. 1210 New England building, supplied a number of firms in that city with its stoker system. Among the firms are the Kilby Mfg. Co., the Arcade Company, the New England Company, Gund brewery, Central Trust building, Sheriff Street Market & Cold Storage Co., Standard Welding Co., Eastern Ohio Traction Co., Forest City Electric Co., Cleveland Crane & Car Co., E. P. Roberts & Co., and Consolidated Construction Co. In the underfeed system the green fuel is introduced below the fire line and in raising is brought to the coking stage, at which the gases liberated pass upward through the brightly-blazing fire and are consumed to the last degree. The advantage claimed for the system is perfect combustion and consequent saving of fuel. The company has been so busy filling orders for manufactories and buildings that it has paid little attention to marine trade of late, but it intends eventually to take it up. At present the stoker is installed on the tugs Perfection and Mollie Spencer in Chicago. It was impossible to keep up steam with hand firing on either of these tugs, but with the stokers no difficulty has been experienced in obtaining the full capacity of the engines with a saving of one-third in fuel.

Splendid Opportunity.

An old established firm, with ample protection for their specialties by both United States and foreign patents, desires to increase their capital and at the same time secure the services of experienced men as heads of different departments, and as managers of agencies in all the large cities. Parties having from \$1,000 to \$10,000 to invest can secure a permanent position and have absolute protection for their investments with this firm. Sheet metals, brass work and light machinery enter largely into the manufacture and use of this firm. The business is mostly contracts of from \$5,000 to \$25,000 each and is now earning ten per cent. on the proposed capital, which will be more than doubled with the larger capital and new fields to draw from. This is a splendid opportunity and should be taken up at once. Address Box 313, Toledo, Ohio.

Side-Wheel Passenger Steamer.

For Sale—Passenger and freight steamer Urania. British registry. Built at Milwaukee in 1875 and then named Flora. Rebuilt in 1899 with engines from revenue cutter Andrew Johnson. Wooden hull. Three decks. Length 180 ft.; breadth 27 ft. 4 in. Thirty-three staterooms, 98 berths. Allowed 98 first-cabin and 402 steerage passengers. Speed 13 miles. Electric light plant practically new. Engines and boilers were thoroughly overhauled when transferred to this hull and have been well kept up. Urania has been running between Cleveland and Port Stanley and fuel consumption for day and night trips on run was about 400 tons per month. Address Box 41, the Marine Review Pub. Co., Wade Bldg., Cleveland. tf.

For Sale.

One 18x6 Air Hoist Cylinder, two round ore buckets, bottom dump 26x35. Harris Machinery Co. Minneapolis, Minn. July 16.

U. S. Engineer Office, Detroit, Mich., June 18, 1903. Sealed proposals for building concrete superstructure on main pier at Sand Beach harbor of refuge, Mich., will be received here until 3 P. M., standard time, July 18, 1903, and then publicly opened. Information furnished on application. LANSING H. BEACH, Major, Engrs. July 16.

Sealed proposals will be received at the office of the Light House Engineer, Buffalo, N. Y., until 12 o'clock, M., Friday the 17th day of July, 1903, and then opened, for furnishing the materials and labor of all kinds necessary for establishing a light and fog-signal station on the new pier head at the end of the west breakwater at Ashtabula, Ohio, in accordance with specifications, copies of which, with blank proposals and other information, may be had upon application to Maj. T. A. BINGHAM, U. S. A., Engineer, Tenth Light House district. July 2.

Boiler and Engine for Sale.

Both in first-class condition. Boiler 10½ ft. in diameter and 14 ft. long; 120 lbs. steam allowed. Fore and aft compound engine; high-pressure, 22 in. diameter low-pressure, 44-in., with 36 in. stroke. Address Barry Trans Co., East End Michigan St., Chicago, I l. t f

Position Wanted by Ship Designer and Builder.

Responsible position wanted to assist in designing and building all kinds of ships—steam and sail. Address Box 45, Marine Review Pub. Co., 39-41 Wade Bldg., Cleveland, O. July 2.

U. S. Engineer Office, Grand Rapids, Mich., June 22, 1903. Sealed proposals for steam plant for suction dredge will be received here until 3 p. m., July 22, 1903, and then publicly opened. Information furnished on application. M. B. ADAMS, Lieut. Col., Engrs. July 16.

The Little Red Book

of appointments of Captains and Engineers for the season of

1903

IS JUST FROM THE PRESS.

A new list in the book this year shows the capacity in iron ore of every vessel that is suited to carrying iron ore. This ore capacity list is made up from averaging all cargoes for 1902.

PRICE \$1.00.

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We have under construction a complete Ship Building Plant, modern in every detail and capable of handling the LARGEST SHIPS which the trade of the Great Lakes will require; also

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A Floating Dock of all steel construction and equipped with the best pumping machinery and appurtenances, and with a capacity for Docking the largest Boats afloat or which may be built.

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We build High Grade Engines for Lake and Ocean Service.

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Improved designs of high efficiency, made of Semi Steel, either whole or sectional.

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We are the sole owners of the rights for applying this system to the Steamers of the Great Lakes. If your boilers are using too much coal, if you are short of steaming capacity, if you want to convert the objectionable black smoke into money, the HYDRO CARBON SYSTEM should receive your attention, as it successfully and economically handles each of the above cases.

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We build all sizes for any service.

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and Supplies of all kinds, and Heavy Forgings.